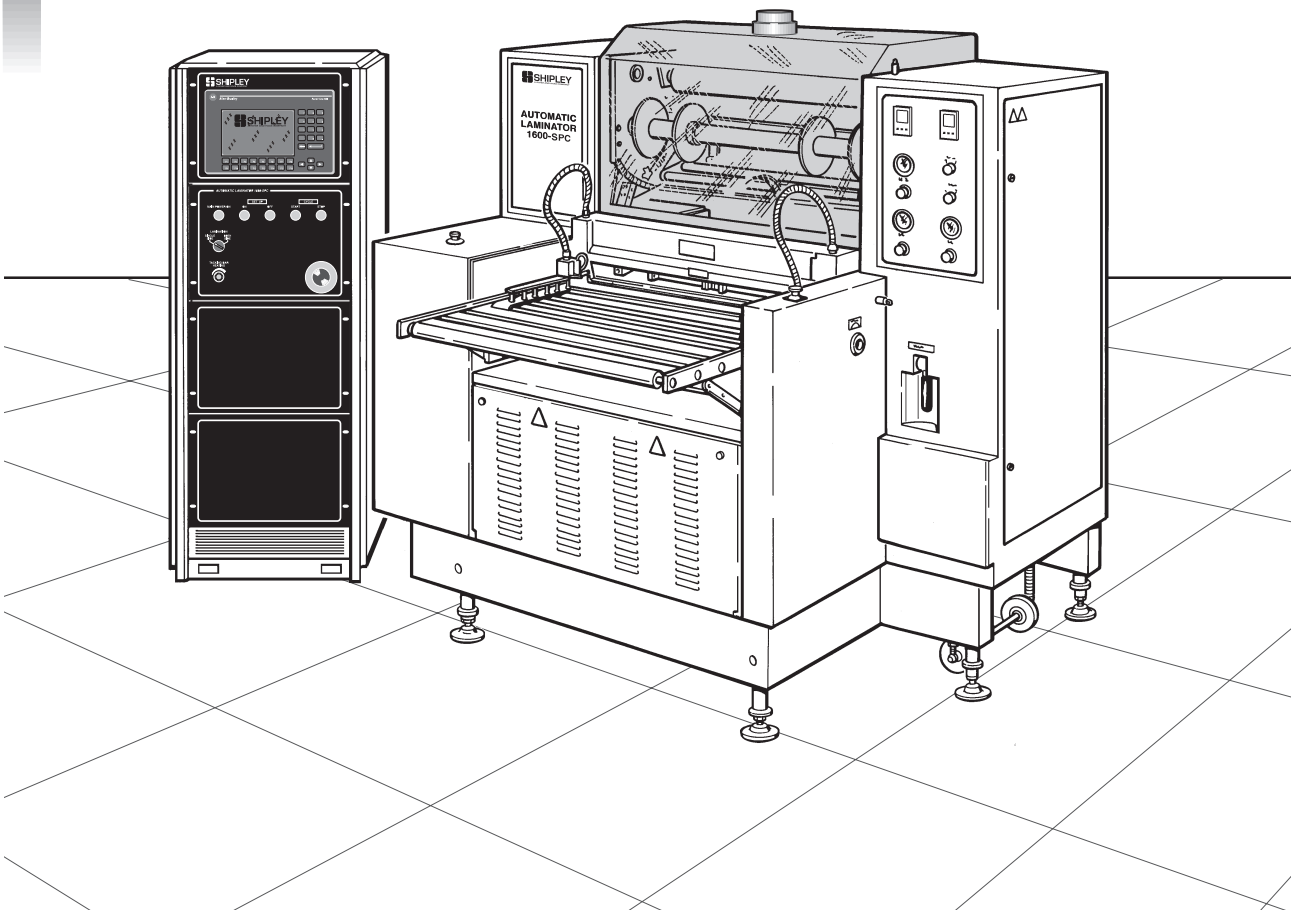
SHIPLEY
A ROHM AND HAAS COMPANY

AUTOMATIC LAMINATOR 1600-SPC



Index
Notice
Warranty
Description of the symbols
Special recommendations for the operator

OPERATING AND SERVICE MANUAL

Ed. 05/01

Home page
EXIT

NOTICE

THIS INSTRUCTION MANUAL SHOULD BE READ CAREFULLY BEFORE INSTALLING, OPERATING OR PERFORMING MAINTENANCE ON THE MACHINE.

THE INFORMATION CONTAINED HEREIN IS CORRECT ACCORDING TO OUR KNOWLEDGE. MORTON, HOWEVER, IS NOT RESPONSIBLE FOR EVENTUAL INACCURACIES HERE DESCRIBED.

THE USER IS RESPONSIBLE FOR THE SAFE INSTALLATION AND OPERATION OF THE MACHINE.

WARRANTY

The machine is guaranteed by Shipley against defects in materials and workmanship for a period of 90 days from the date of receipt by the customer.

During this time Shipley will be responsible for the replacement or repair, at its option, of any defective parts and for any labor charges connected with the repair of the machine.

For an additional period of 90 days, Shipley warrants that it will replace or repair any parts recognized as being defective at its discretion. All labor charges will, however, be at the customer's charge during this additional 90 days period.

Shipley should be notified in writing of any defects in materials or workmanship and, if such instructions are given, the machine or any part thereof may be shipped to Shipley for repair.

Neither the machine nor any part thereof should be returned to Shipley without written authorization from the same.

This warranty is only effective when the machine is installed in accordance with Morton's specifications.

The warranty becomes void if the machine is incorrectly used or contrary to the instructions, or if alterations or repairs are made by un authorized Shipley representatives or without written permission from Shipley.

Shipley will merely be responsible for repairing and/or replacing defective parts and for repairing failures without any charge for the purchaser and in compliance with the above mentioned conditions.

Shipley is not responsible for any incidental or consequential damages. Morton's liability will never exceed reimbursement of the purchase price of the machine.

This warranty is expressly in lieu of all other explicit or implicit guarantees including the warranty of marketability or fitness for a particular purpose.

Shipley is a registered trademark.

SPECIAL RECOMMENDATIONS FOR THE OPERATOR

- The terms: right, left, upper, lower, etc. used in this manual to describe and locate the machine components and parts always refer to the correct position of the operator when inserting the panels during standard operation.

- Before starting to work on the machine, the operator must be completely familiar with this manual, the technical specifications of the machine and its controls.

- It is also advisable for the operator to attend a training period on how to use the machine.

- The mechanical parts and the electric components are located inside the machine and are protected by panels entirely closed by screws plus safety microswitches or interlocked switches.

- Before removing the safety protections to have access to the internal parts, make sure that the main power switch of the machine is in "**OFF**" (O) position, so that there is no power into the machine when the operator works.

- During the installation, it is essential to provide a building line main switch and a ground system fully complying with industrial accident prevention regulations.

- Any control or periodic maintenance operations which require the removal of safety protections are to be intended as effected under the full responsibility of the User and therefore should be carried out only by authorized and skilled persons.

- Shipley will not be responsible for accidents or damages to persons or things, when such fundamental safety rules are not complied with.

- **Anyway such rules, together with all rules concerned with the installation of the machine and with electrical connections, are an integral part of the industrial accident prevention regulations of any single Country.**

- **Never carry out improvised or hurried repairs which might compromise good machine operation.**

- **SHOULD ANY DOUBT ARAISE ALWAYS ASK SKILLED MORTON PERSONNEL FOR INTERVENTION.**

- **Periodically check the efficiency of the safety devices and protections and make sure that they are operating.**

- **ANY ERRONEOUS INTERVENTION BY THE USER WILL IMPLY NO LIABILITY WHATSOEVER ON MORTON, AND THE USER SHALL BE FULLY LIABLE TOWARDS THE COMPETENT AUTHORITIES FOR ACCIDENT PREVENTION.**

DESCRIPTION OF THE SYMBOLS

Many accidents are caused by insufficient knowlegde of the safety regulations or failure to apply these instructions when running or servicing a machine.
To prevent accidents, it is essential to read, understand and comply with all the precautions and warnings contained in this manual and those reported on the safety plates fixed to the machine.
The following symbols have been used to identify the safety messages printed in this manual:

DANGER

This symbol is used to identify safety messages when these draw the operator's attention to situations of danger.

WARNING

This symbol is used to identify safety messages when these draw the operator's attention to situations of danger which, if ignored, could cause slight or moderate injuries or damages.
The message can be also used for dangers which can cause damages to the machine.

NOTE

This symbol is used to identify precautions the operator must take in order to avoid operations that could reduce the life of the machine, or to identify important information for the operator.

IMPORTANT

For clear information some of the illustrations in the manual show the machine without safety guards.

NEVER USE THE MACHINE WITHOUT SAFETY GUARDS.

GENERAL INDEX (1/2)

INTRODUCTION

1.1 TECHNICAL FEATURES ..... I - 1
1.2 GENERAL DESCRIPTION ..... I - 3
1.3 LAYOUT ..... I - 5
1.4 ELECTRICAL CONTROL CABINET ..... I - 5
1.5 MACHINE IDENTIFICATION ..... I - 6
1.5.A Check at reception. ..... I - 6
1.6 PRELIMINARY CHECKS AND INSTALLATION ..... I - 6
1.6.A - Installation ..... I - 6
1.6.B - Machine positioning and leveling ..... I - 7
1.6.C - Pneumatic connection ..... I - 8
1.6.D - Connection of the exhaust hose ..... I - 8
1.6.E - Electrical connection ..... I - 9
1.6.F - Check of the electrical connection ..... I - 9
1.6.G - Electrical connection in line with other machines ..... I - 10

OPERATIONS

2.1 CONTROL PANEL ON THE CABINET ..... II - A.1
2.2 CONTROL PANEL ..... II - A.2
2.3 PUSH-BUTTON PANELS ON THE MACHINE ..... II - B.1
2.4 PNEUMATIC ADJUSTMENT CONTROL PANEL ..... II - B.2

3.1 OPERATOR GUIDE FOR START UP ..... II - C.1
3.2 OPERATING CYCLE ..... II - D.1
3.3 OPERATIONS OF THE VARIOUS GROUPS/ INDEX ..... II - E.1
3.4 ADVICE FOR LAMINATION ..... II - G.1
3.4.1 Temperature of the input panel ..... II - G.1
3.4.2 Temperature of the rubber pads for tacking ..... II - G.1
3.4.3 Tacking time ..... II - G.1
3.4.4 Lamination pressure ..... II - G.1
3.4.5 Temperature of the lamination rolls ..... II - G.2
3.4.6 Static tension on the dry film coils ..... II - G.3
3.4.7 Distance between input panels ..... II - G.3
3.5 SETTING UP THE UNIT ..... II - H.1

4.1 INPUTS/OUTPUTS LIST ..... II - I.1
4.1.A PLC digital input list ..... II - I.1
4.1.B PLC digital output list ..... II - I.2
4.1.C PLC analogue input list ..... II - I.3
4.1.D PLC analogue output list ..... II - I.3

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LI 1600-SPC - 99-2095

GENERAL INDEX (2/2)

5.1 COMPLETE LIST OF ALARM MESSAGES AND IDENTIFICATION CODES ..... II - L.1
5.2 DESCRIPTION OF ALARM MESSAGES ON ALLEN BRADLEY DISPLAY ..... II - M.1
-- BATTERY REPLACEMENT FOR PLC ALLEN BRADLEY ..... II - N.1
-- REPLACEMENT OF THE FLASH ATA CARD CONTAINING THE MESSAGES ..... II - N.2
-- FLOW CHART OF ALLEN BRADLEY PV 900 DISPLAY ..... II - N.3

MAINTENANCE

- CHECK AND MAINTENANCE TABLE ..... III - 1
6.1 CHECKS AND MAINTENANCE ..... III - 2
6.1.A - General information ..... III - 2
6.1.B - Routine maintenance ..... III - 2
6.1.C - Extraordinary maintenance ..... III - 2
6.1.C.1 Replacement of the lamination rolls ..... III - 3
6.1.C.2 Replacement of the IR lamps ..... III - 4
6.1.C.3 Replacement of the tacking bars ..... III - 5
6.1.C.4 Replacement of the movable blades ..... III - 7
6.1.C.5 Replacement of the counterblades ..... III - 7
-- PACKING AND SHIPPING ..... III - a
-- LIFTING THE CRATE ..... III - a
-- LIFTING THE MACHINE ..... III - b
-- DEMOLISHING THE MACHINE ..... III - b

SPARE PARTS

- ORDERS
- INDEX
- DRAWINGS
- NUMERICAL INDEX

ELECTRIC DRAWINGS

OPTIONS

-- THIN PANEL UNIT ..... Options I - I.1
-- EXPANSION ROLLS ..... Options II - II.1

1.1 TECHNICAL FEATURES

1 / 2

ELECTRICAL FEATURES

- Power type ..... three-phase 50/60 Hz + ground
- Power consumption ..... 8.5 KVA
- Nominal voltage ..... 380/415/480/220/200 V
- Building line main switch
  - for 380-415 V tensions ..... I= 20A “motor starting” type
  - for 480 V tension ..... I= 16A “motor starting” type
  - for 220-200 V tensions ..... I= 25A “motor starting” type

PNEUMATIC FEATURES

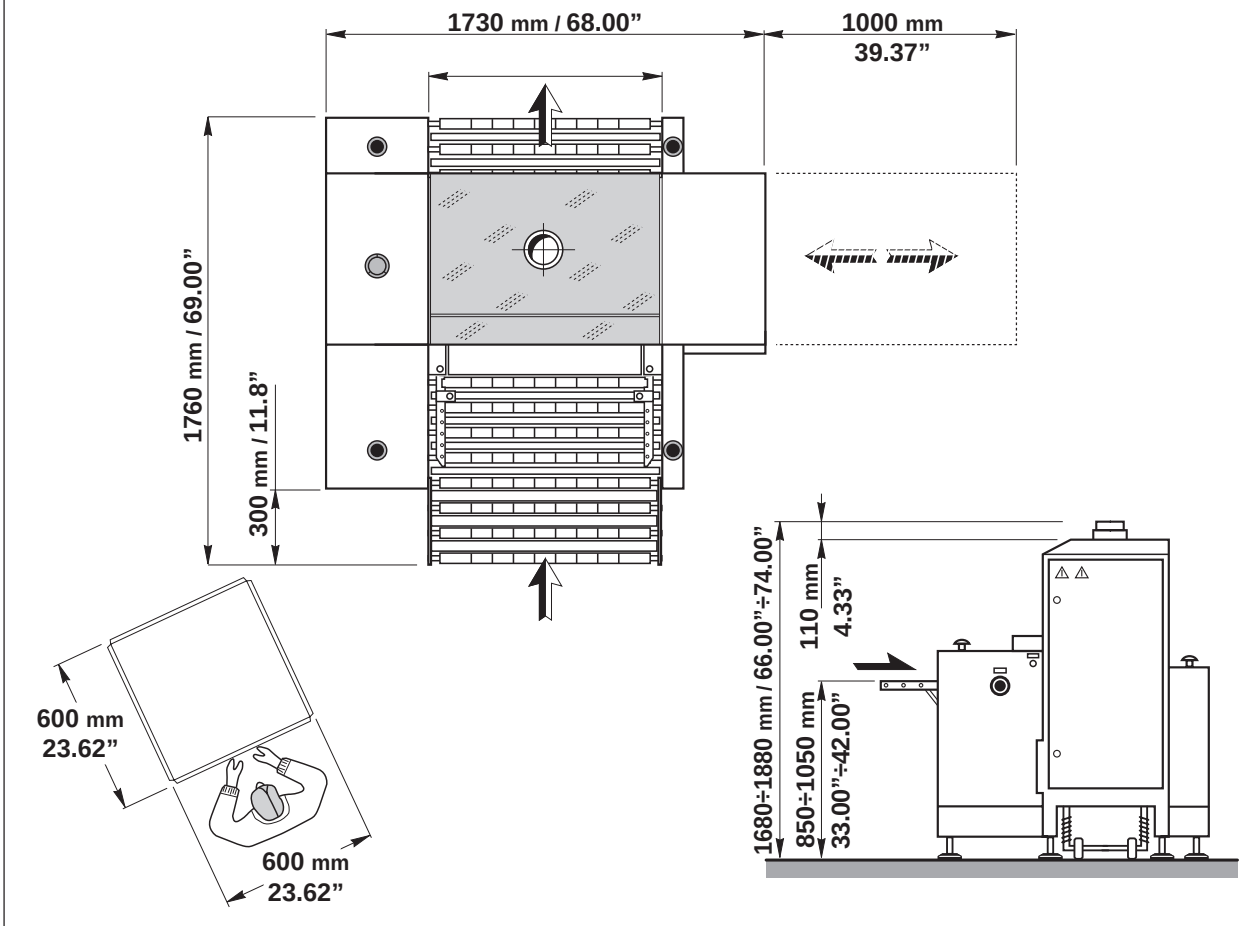
- Consumption ..... 12 NI/cycle ... 1 CFM/cycle
- Operating pressure ..... 6 kg/cm^2. ..... 85 PSIG

EXHAUST FEATURES

- Max. air consumption for exhaust ..... 300 m^3/h

WEIGHT

- Gross ..... 1750 kg ..... 3860 lb
- Net ..... 1402 kg ..... 3090 lb



Note: Allow 1000 mm (39.37”) on each side where the operator must work

1.1 TECHNICAL FEATURES

GENERAL FEATURES

➨ Max overall dimensions
- Width ..... 1730 mm ..... 68.00”
- Max length (with roller extended) ..... 1760 mm ..... 69.00”
- Height (min÷max) ..... 1680 ÷ 1880 mm ... 66.00”÷74.00”

➨ Input roller
- Width ..... 900 mm ..... 35.43”
- Length (fixed roller) ..... 600 mm ..... 23.62”
- Length (folding roller) ..... 300 mm ..... 11.81”

➨ Output roller
- Width ..... 900 mm ..... 35.43”
- Length ..... 250 mm ..... 9.84”

CONVEYOR

- Conveyor height (min÷max) ..... 850 ÷ 1050 mm ... 33.00”÷42.00”
- Adjustable conveyor speed ..... up to 5 m/min. ..... 16,5 fpm

LAMINATION ROLLS

- Diameter ..... 100 mm ..... 3.93”
- Length ..... 814 mm ..... 32.00”
- Hardness ..... 60 Shore
- Lamination speed (min÷max) ..... 0.5 ÷ 5 m/min. 1,65 ÷ 16,5 fpm
- Rolls temperature (min÷max) ..... Room ÷130°C
- Rolls pressure (max. at 6 bar) ..... 320 kg ..... 704 lb

FRONT AND REAR EDGES

- Both adjustable (min÷max) ..... 0 ÷ 50 mm ..... 0”÷ 1.96”
- Front edge tolerance (max) ..... ± 0.5 mm ..... 0.019”
- Rear edge tolerance (max) ..... ± 1.0 mm ..... 0.039”

PANEL SIZE

- Width (min÷max) ..... 120 ÷ 787 mm .... 4.70”÷ 31.00”
- Length (min÷max) ..... 210 ÷ 787 mm .... 8.26”÷ 31.00”
- Thickness (min÷max) ..... 0.1 ÷ 5 mm .. 0.004”÷ 0.196”
  (with optional thin panel unit) (min) ..... 0.05 mm ..... 0.0019”

DIMENSIONS OF DRY FILM FOR LAMINATION

- Width (min÷max) ..... 120 ÷ 762 mm .... 4.72”÷ 30.00”
- Length (min÷max) ..... 187 ÷ 762 mm .... 7.36”÷ 30.00”
- Coil diameter (max) ..... 240 mm ..... 9.50”
- Thickness ..... all thicknesses

NOISE LEVEL

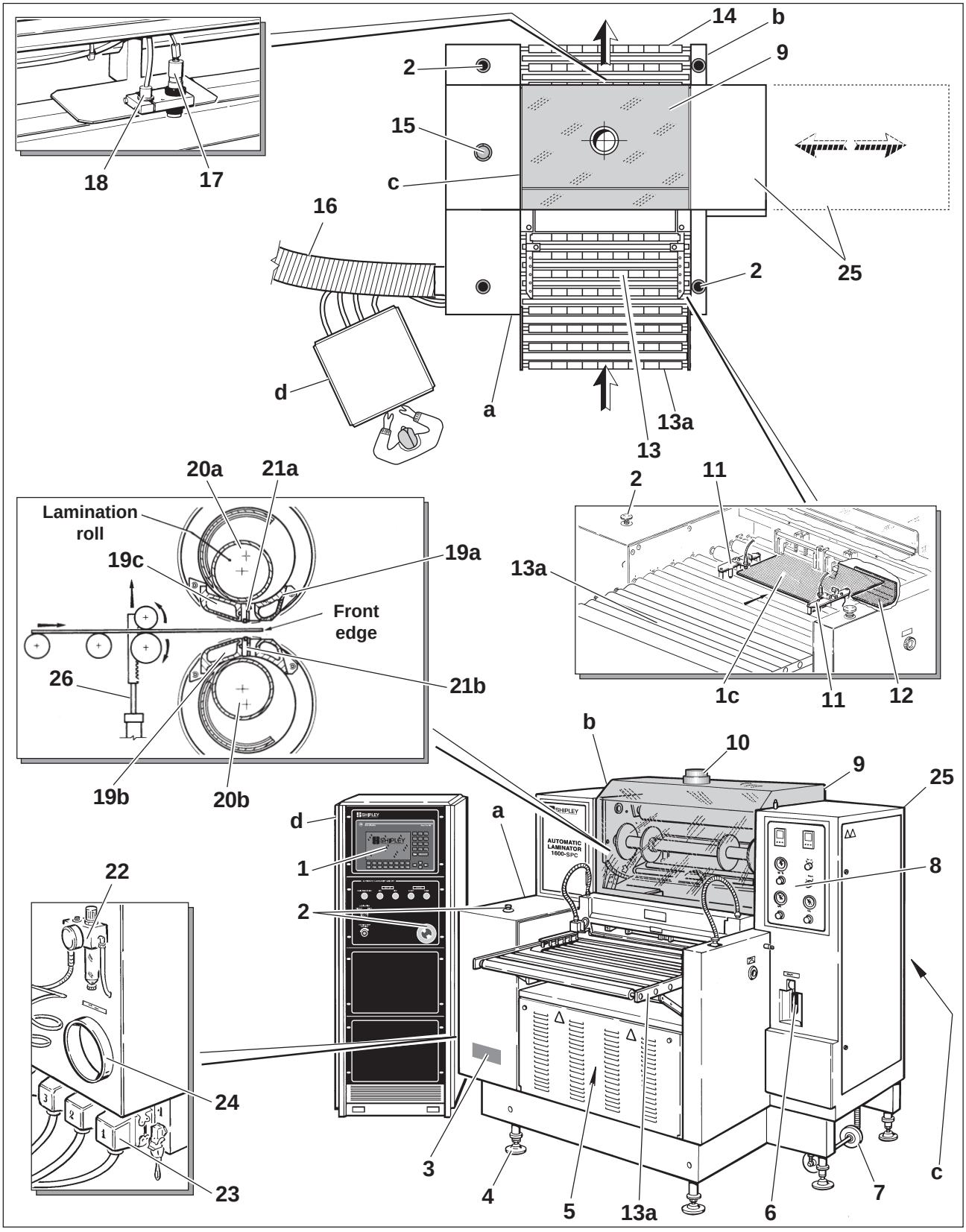
- Max (continuous pondered equivalent value “A”) ..... 75 dB

1.2 GENERAL DESCRIPTION

(picture 1 - page I-4)

- The Shipley Laminator mod. 1600-SPC is a completely automatic 30" laminator, based on a totally new design concept, constructed to guarantee the highest lamination quality and absolute reliability of the machine over a long period of time.
- In order to achieve these objectives, the machine has been designed to incorporate the following innovations:
  - A lateral centering unit, “soft-contact” type, suitable also for inner layers.
  - A frontal centering unit (11) for the alignment of the panels to the lamination rolls.
  - Tacking bars (21a/b) that turn eccentrically around the lamination rolls, thus preventing any possibility that the panel is moved after tacking and before lamination (which is the main cause of wrinkle formation).
  - Dynamic tension rolls for the dry film to be laminated (in addition to static tensioning unit).
  - Cutting on the fly by means of shears which do not move the dry film sideways, thus ensuring a clean and reliable cut throughout innumerable operating cycles.
  - Direct hot lamination by means of a single pair of rolls with dia. 100 mm, heated externally by highly efficient short-wave IR lamps (short temperature recovery time).
  - Electronic control by means of a microprocessor with mother-tongue interface through a keyboard and a display which includes diagnosis, alarms and an operator guide.
- The 1600-SPC Laminator is totally managed and controlled by an Allen Bradley PLC, and interfaced to an Allen Bradley display.
- This new PLC is particularly suitable for Ethernet LAN connections.
- The SPC data collection system (Statistic Process Control) allows the remote monitoring of the system and of the process parameters.
- This system is compatible with various supervisory softwares on the market, such as:
  - Wonderware
  - Fix Intellution
  - and others more.

- The following parameters are thus available in line:
  - Temperature of upper and lower lamination rolls
  - Lamination speed
  - Tacking time
  - Tacking temperature (percentage 0÷100%)
  - Lamination pressure
  - Upper and lower static pressure
  - Temperature of output panel
  - Front and rear edges
  - Single side and double side lamination
  - Count of processed panels.



Picture 1 - GENERAL DESCRIPTION OF THE MACHINE

1.3 LAYOUT (picture 1)

The 1600-SPC laminator consists of the following blocks:

a - A fixed front unit containing the input roller (13) on which are mounted:
- the panel centering system (11) and insertion system (1c) between the lamination rolls (20a/b);
- the vacuum pump (5) for the vacuum sectors (19a/b/c);
- the exhaust fan for the lamination fumes with an air outlet;
- an exhaust fan (10) on the cap (9).

b - A fixed rear unit consisting of an output roller (14), on which are mounted:
- an IR sensor (18) which reads the temperature of laminated panels;
- a photocell (17) for detecting the output panel;
- the grounding bars for static electricity.

c - A removable central unit on which are mounted:
- the lamination rolls (20a/b);
- the vacuum sectors (19a/b/c);
- the tacking bars (21a/b);
- the cutting groups;
- the dry film rolls;
- the dry film dynamic tension rolls;
- the lateral cutting groups;
- the IR lamps for heating the lamination rolls;
- the protective cap (9).

d - A control cabinet mounted on wheels, containing all the electrical commands, the display and the keyboard (1).

1.4 ELECTRICAL CONTROL CABINET (picture 1)

The 1600-SPC laminator is controlled by an Allen Bradley PLC (1), series SLC, which interfaces to the operator via a display with messages in his mother tongue and a numerical keyboard.
The PLC is housed in the control cabinet (d) with all the other electrical components and actuators.
The control cabinet is mounted on wheels, and can be easily moved.
It is connected to the machine by multi-wire cables and connectors.
It can be located either to the left or to the right of the machine. In order to facilitate the operator's work, it is advisable, whenever possible, to place it to the right.
The universal power transformer of the control panel makes it possible to use various network voltages (see chapter "TECHNICAL FEATURES").

NOTE

Should it be necessary to connect the machine to voltages other than the one for which it has been preset, our technical assistance office should first be consulted for all necessary information.

The electrical control cabinet is fitted with three panels where the electrical components are located:
- the main one in the rear;
- a secondary one hinged to the right side;
- a secondary one hinged to the left side.

Key

a - Stable front unit
b - Stable rear unit
c - Removable central unit
d - Control cabinet

1 - Allen Bradley display
2 - Emergency push-buttons
3 - Machine identification plate
4 - Support feet
5 - Vacuum pump
6 - Lever for releasing the removable unit
7 - Removable unit wheels
8 - Pneumatic adjustment control panel
9 - Cap of lexan
10 - Exhaust fan for fumes in the cap
11 - Shoulders of the centering unit
12 - Front barrier
13 - Input roller
13a - Folding input roller
14 - Output roller
15 - Flashing alarm lamp
16 - Flexible exhaust hose
17 - Photocell for detecting output panels
18 - IR sensor for reading the laminated panel temperature
19a/b/c - Vacuum sectors
20a/b - Lamination rolls
21a/b - Tacking bars
22 - Connection for compressed air
23 - Panel-to-machine connectors
24 - Exhaust hose coupling
25 - Removable central unit
26 - Insertion group

1.5 MACHINE IDENTIFICATION (picture 1)

- The serial number and identification data of the machine are punched on a plate (3) fixed to the frame on the left of the front side.

NOTE

Always indicate the serial number of the machine when requesting technical servicing or when ordering spare parts.

1.5.A Check at reception.

- After removing the packing, make sure that the machine has not been damaged during transport.
- Check for damages to the machine structure and for crushed, torn or broken electrical cables.

NOTE

Should damages to the machine or its accessories be discovered, immediately inform in writing our Technical Service Department or the Area Agent (no later than 8 days after reception date).

1.6 PRELIMINARY CHECKS AND INSTALLATION

1.6.A - Installation

Unit 1600-SPC, either installed alone or in line, must be positioned in strict compliance with the indications in the Table “OVERALL DIMENSIONS” which give the minimum space required by the operator to carry out correctly each work sequence and/or servicing operation.
The machine is equipped with a power cable without plug, and it is set to operate with a standard 380V voltage (415/480/220/200V on request) - 50 or 60 Hz three-phase plus ground.
It is possible to supply other voltages when ordering, by previous agreement.

WARNING

Before connecting the power supply, make sure that the characteristics of the electrical power supply comply with the values on the identification plate of the machine (pos. 3 picture 1).

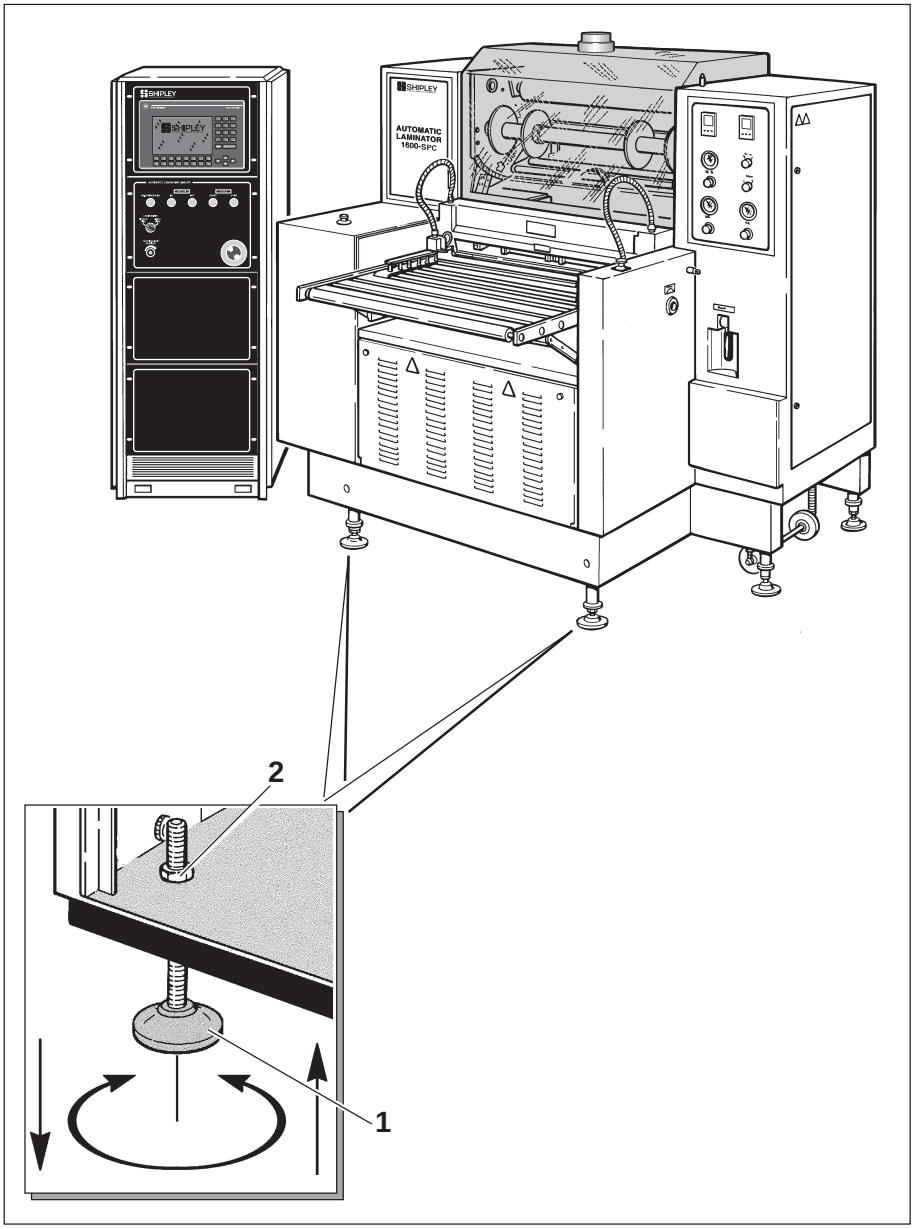
NOTE

For the electrical wall connection, the power supply line must be equipped with a switch as indicated in the chapter “Technical Features”, and the cable section must be adequate for such current value.
Voltage variations must not exceed ±7% of the rated value.

1.6.B Machine positioning and leveling (picture 2)

Place the machine in its established place, adjust its height and level the conveyor height by means of the support feet (1) as follows:

1- Loosen the nuts (2) of all support feet of the unit.
2- Turn the feet to adjust the height of the machine and level the conveyor height.
3- Once completed the operation, lock the feet in place by tightening the nuts (2).



Picture 2 - HEIGHT ADJUSTMENT

1.6.C Pneumatic connection (picture 3)

The coupling for pneumatic connection to the factory air supply is placed externally at the bottom of the rear side.

Connect the built-in ON/OFF valve (1) to the compressed air supply line, bearing in mind that the operating pressure of the machine is indicated in the chapter “Technical features”.

NOTE

- *A pipe with a minimum inner diameter of 8 mm and external diameter of 10 mm is required for the connection.*
- *The machine is supplied with the operating pressure already set by the pressure regulator (2), therefore no further adjustments are required before starting the machine.*
  However, we recommend to check the value on the manometer (3) to prevent pressure from dropping below 5 atm.

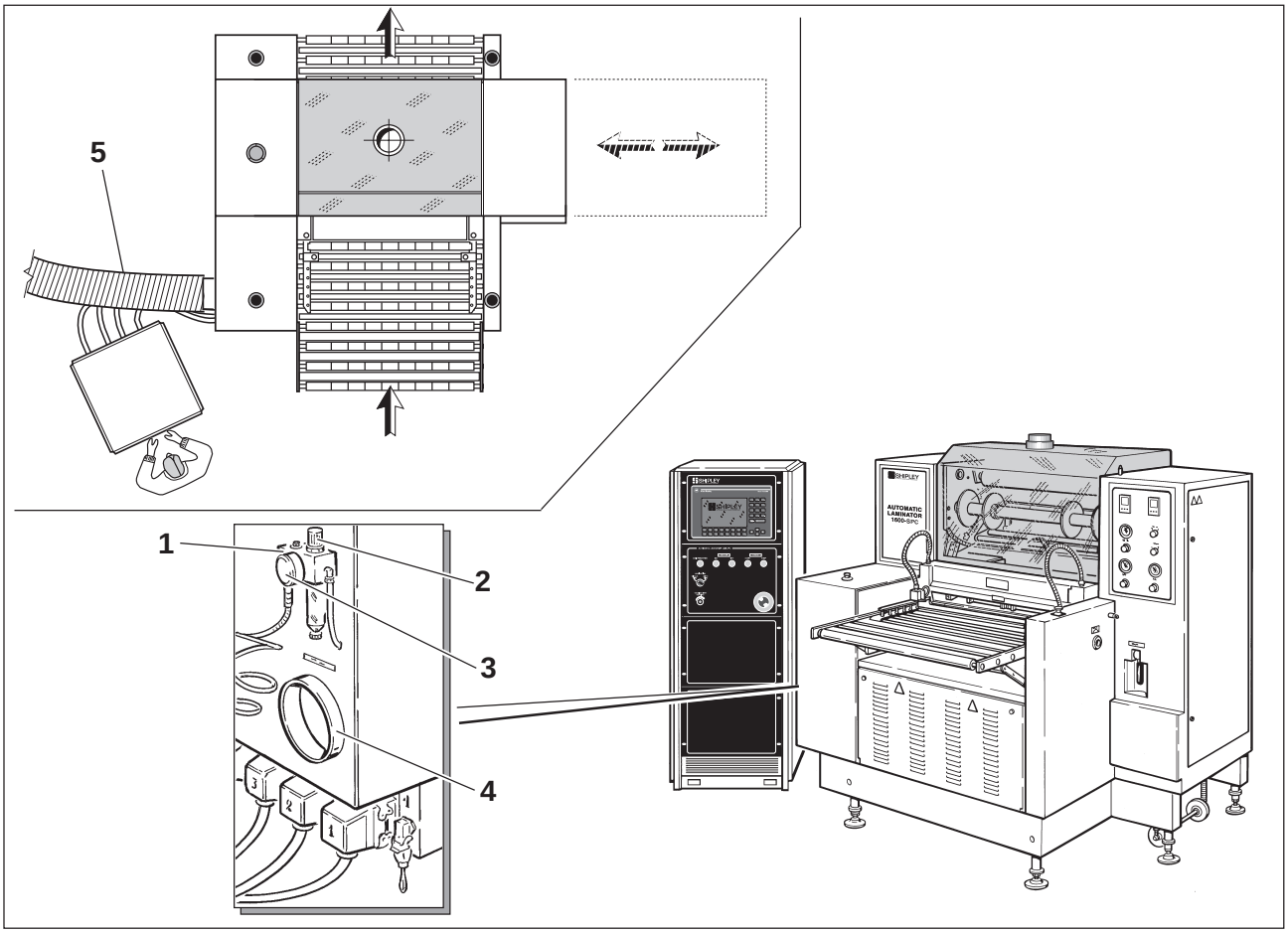
WARNING

The pneumatic system of this Laminator has been designed and built with dry components, therefore lubricated air must not be used.

1.6.D - Connection of the exhaust hose (picture 3)

The 1600-SPC laminator is equipped with a 5 m. long, ø 150 mm flexible hose (5), and with two hose clamps.

It is therefore necessary to connect one end of the hose to the machine hose union (4) and the other end to the main exhaust system.



Picture 3 - PNEUMATIC CONNECTION AND EXHAUST HOSE

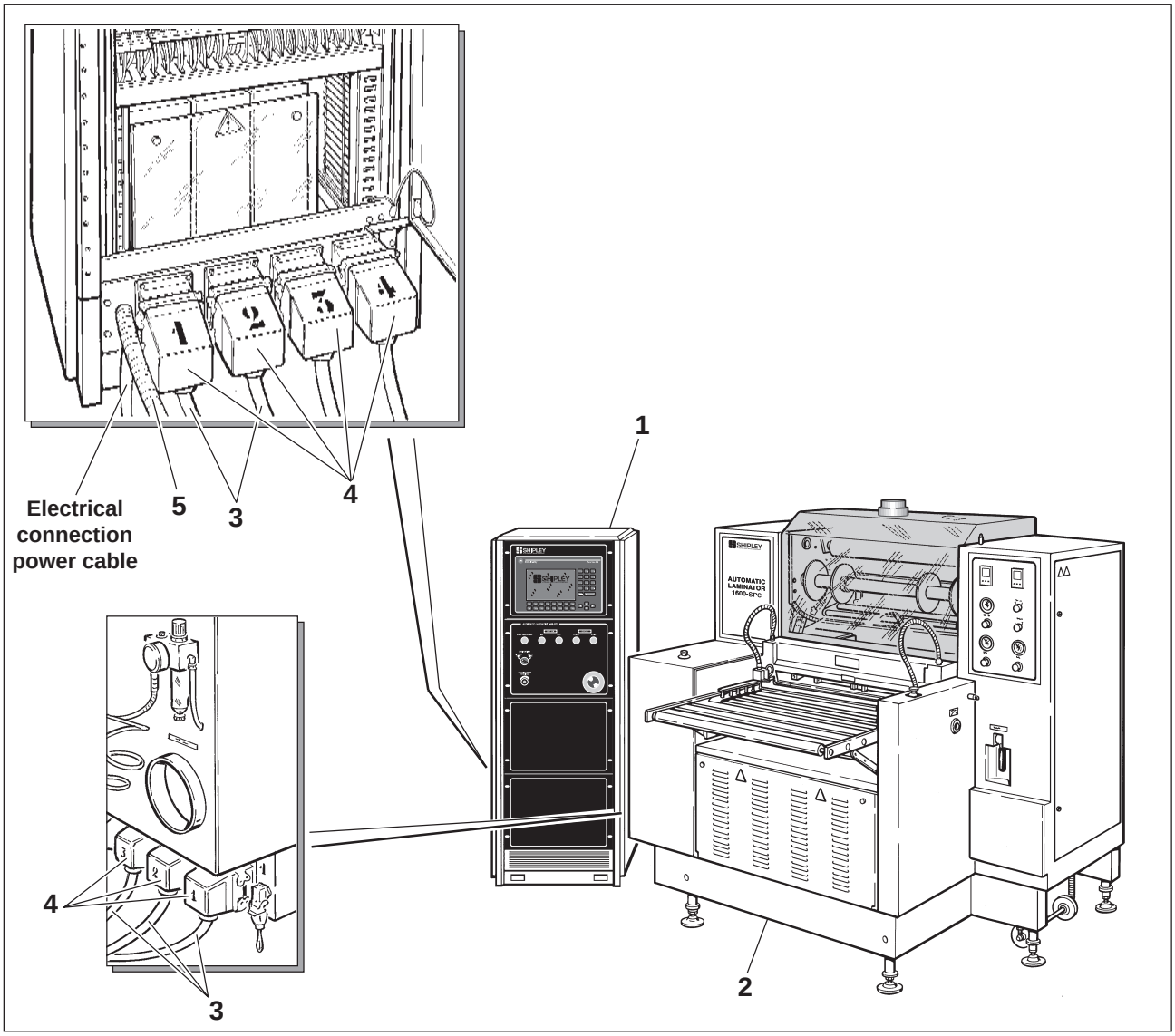
1.6.E - Electrical connection (picture 4)

In order to connect unit 1600-SPC to the main power supply, proceed as follows:

- Connect the power cable to the main power supply, having made sure that it is equipped with an adequate grounding system.
- Place the control cabinet (1) on the most convenient side.
- Insert all the control panel-to-machine connectors (4) in their plugs, complying with the positions printed.

1.6.F - Check of the electrical connection

After completing the electrical connection to the power supply, turn the main power switch to position Ⓘ.
An electronic device will check the correct connection of the phases; an alarm message will appear on the display in case of inverted or missing phases.
In this event, turn the main power switch back to position Ⓞ and invert two of the three phases of the connection, then repeat the check operation.



Picture 4 - CONTROL PANEL-TO-MACHINE ELECTRICAL CONNECTION

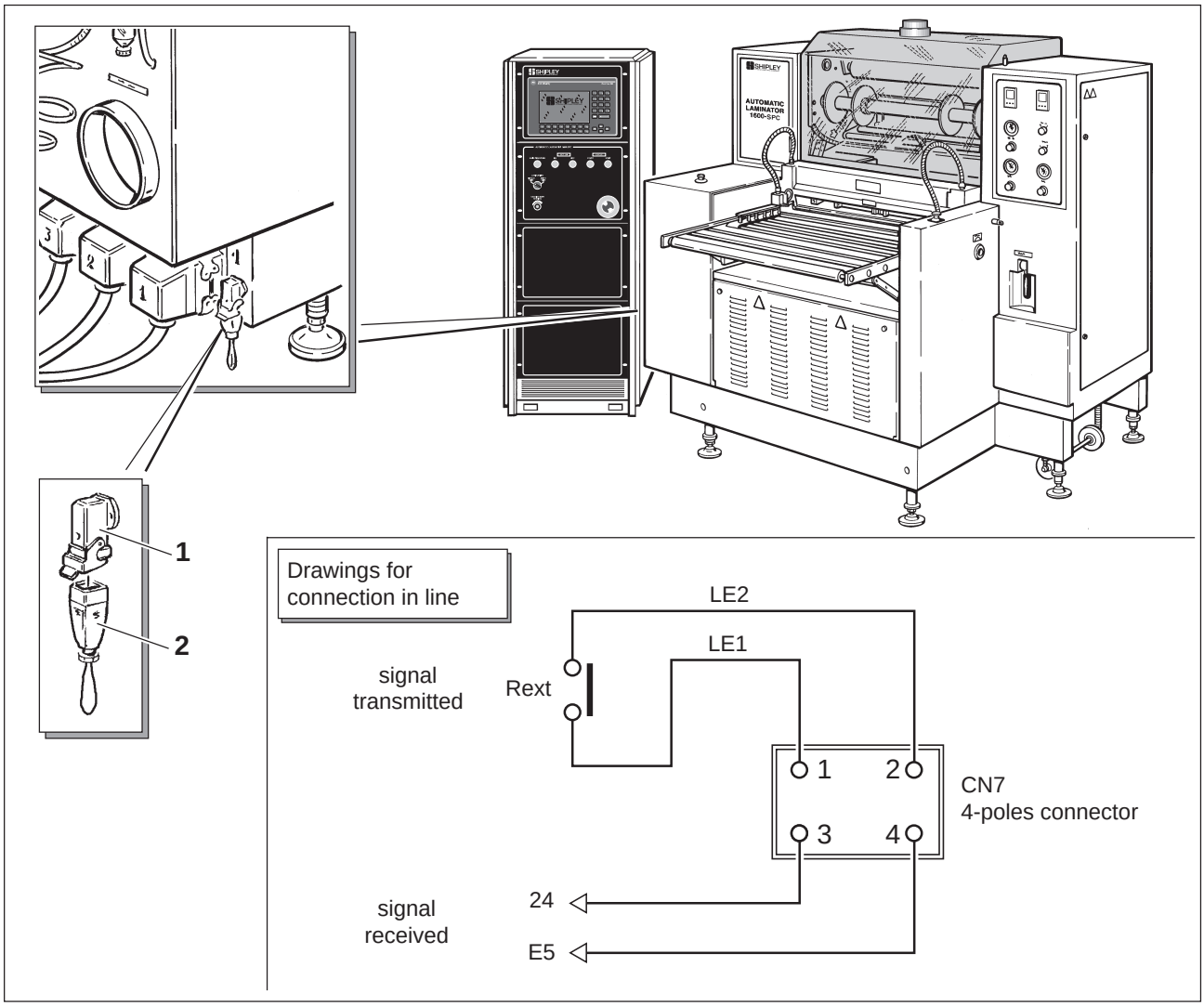
1.6.G - Electrical connection in line with other machines (picture 5)

The 1600-SPC can be connected in line with other machines, enabling or receiving the following commands:

1- The 1600-SPC gives a N.O. (normally open) contact signal of a voltage-free relay. When the contact closes, it means that 1600-SPC is ready to accept panels for processing.

2- The 1600-SPC receives a N.O. (normally open) contact signal of a voltage-free relay. When the contact closes, it means that the machines connected in line are ready to give or to receive panels from the 1600-SPC.

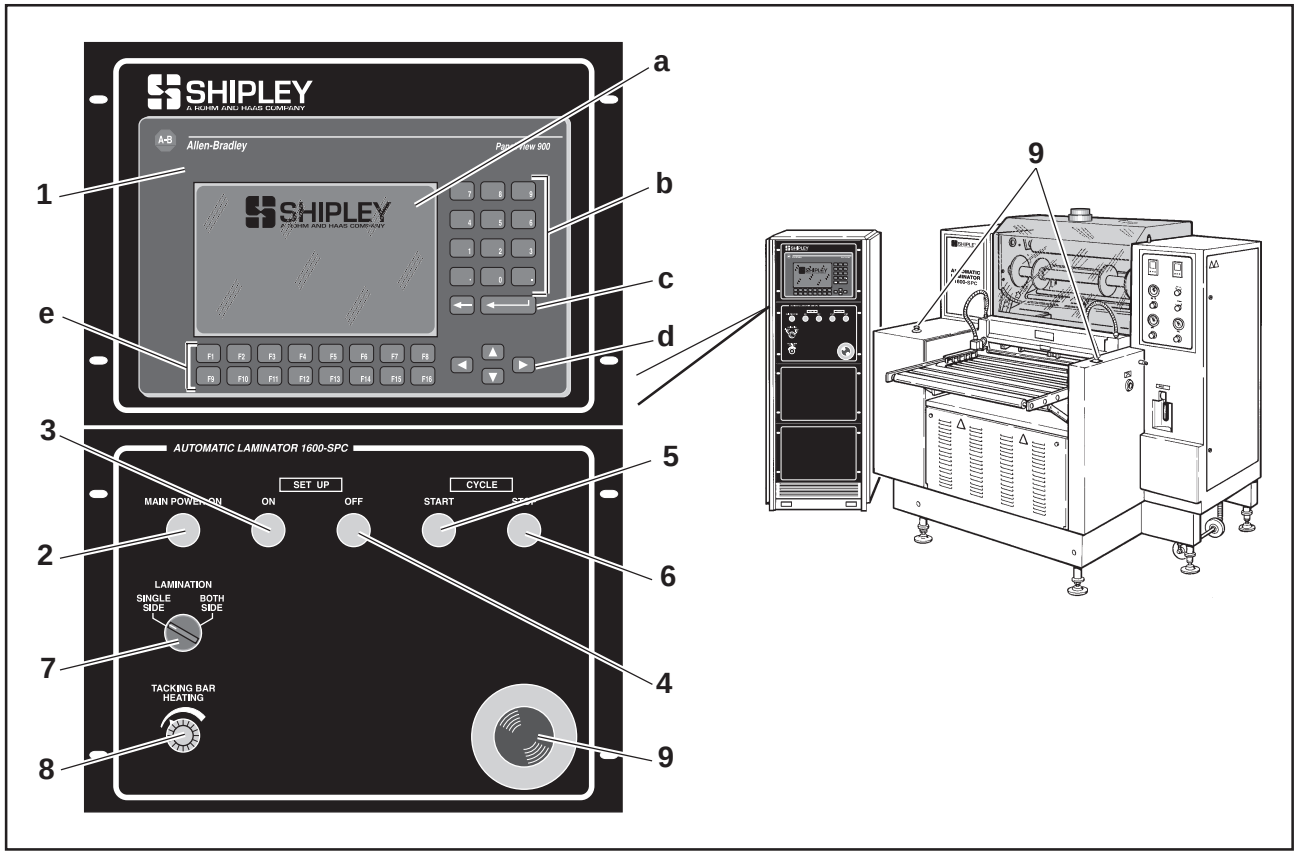
The built-in connector (1) is installed at the bottom of the machine left side (besides the main connectors). If there is no need to use these signals, leave its own plug (2) inserted with the connection already preset during the testing phase.



Picture 5 - CONNECTION IN LINE WITH OTHER MACHINES

2.1 CONTROL PANEL ON THE CABINET (picture 6)

This section gives instructions on how to use correctly the commands and the instruments on the 1600-SPC control panel.



Picture 6 - CONTROL PANEL

KEY

1 - **Display "Panel View 900"**
By means of the function keys (e) it is possible to set and/or modify the machine functions, simply by following the instructions as they appear on the display.
The machine supervision is carried out by the PLC, while autodiagnosis and/or information are shown on the display by means of a series of messages, listed in section 5.1.
a - Display
b - Numerical keyboard
c - Data confirmation key (Enter)
d - Cursor keys
e - Function keys

2 - **"MAIN POWER ON"** white pilot lamp
3 - **"SET UP ON"** push-button
4 - **"SET UP OFF"** push-button
5 - **"CYCLE START"** push-button
6 - **"CYCLE STOP"** push-button
7 - **"LAMINATION SINGLE SIDE/BOTH SIDES"** two-position selector
8 - **"TACKING BAR HEATING"** potentiometer
9 - Emergency push-buttons

2.2 CONTROL PANEL (picture 6)

2- MAIN POWER ON
This is a pilot lamp that indicates that there is voltage present in the electrical panel. It lights up when the main power switch at the rear of the cabinet is closed.

3 - SET UP ON
This is a light button that enables all the machine commands.
It turns off when SET UP OFF or one of the emergency buttons is pressed, or when the machine goes in a state of alarm.
It activates the heating of the lamination rolls and of the tacking bars, the vacuum pump, the exhaust fan, the cap ventilation (if on) and the lateral cutting rewinding motors (if on).

WARNING

Before giving the SET UP ON command, make sure that there is no dry film between the rolls.

4- SET UP OFF
This is an unlit button which unenables the SET UP ON functions.

5 - CYCLE START
This is a light button that starts the lamination cycle.
It is subordinated to SET UP ON and sets in motion the input roller and the centering unit and enables all functions of the lamination cycle.
CYCLE START is unenabled by CYCLE STOP or when the machine stops in an emergency.
The CYCLE START command is accepted only once the central unit has been closed and the dry film has been positioned on the vacuum sectors.

6 - CYCLE STOP
This is an unlit button which unenables all functions activated by CYCLE START.

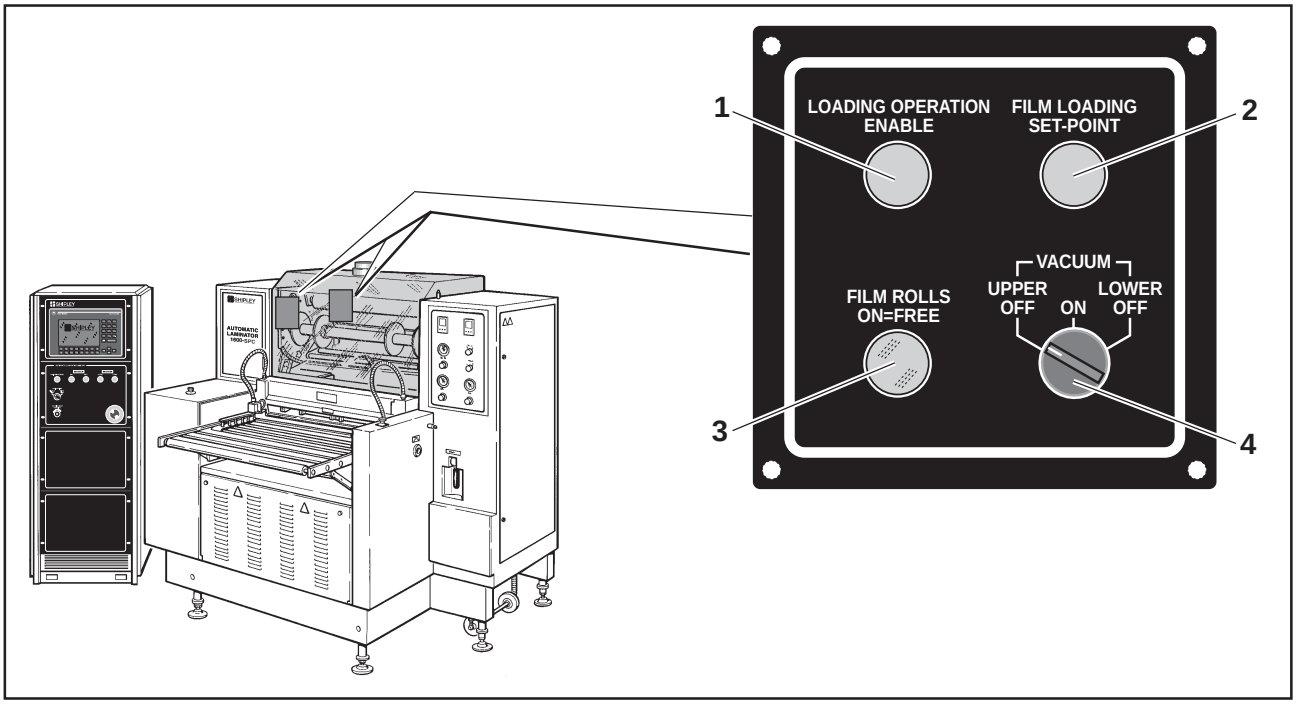
7 - LAMINATION SINGLE SIDE-BOTH SIDES
This is a backlit selector that enables lamination either on one or on both surfaces of the panel.
The selection must be made before the machine set up.

8 - TACKING BAR HEATING
This is a potentiometer which regulates the heating percentage of the rubber pads for tacking. At 0% the pads temperature is the same as room temperature, at 100% it is approximately 45°C.
Its funcion is subordinated to SET UP ON.

9 - EMERGENCY PUSH-BUTTON
It is a button which stops all machine functions instanty.

2.3 PUSH-BUTTON PANELS ON THE MACHINE (picture 7)

This section gives instructions on how to use correctly the commands on the push-button panels of the removable central unit.



Picture 7 - PUSH-BUTTON PANELS ON THE MACHINE

KEY

1- LOADING OPERATION ENABLE

This is a pilot lamp that indicates that the procedure for loading the dry film on the machine has been enabled. It lights up when the machine is open and the SET UP ON button has been pressed.

2 - FILM LOADING SET-POINT

This is an unlit button that enables the procedure for loading the dry film coils.
It is subordinated to SET UP ON and the machine being open.
First turn by hand the rotating sectors to position “Awaiting-Start of cutting”, then press this button in order to fix the indexes in the slots of the cams.
If this command generates an acoustic alarm, it means that the rotating sectors are not in the right position of “Awaiting-Start of cutting”; place them in the correct position, press the button again, then start the loading procedure.

3 - FILM ROLLS ON = FREE

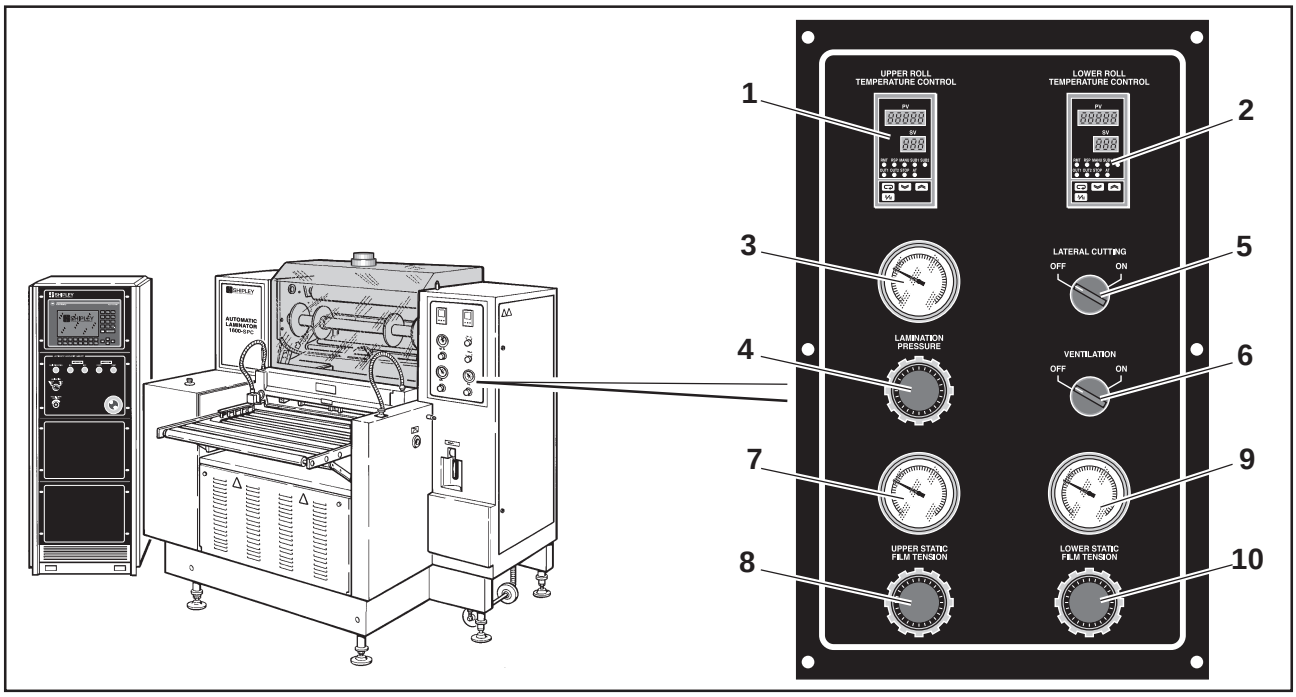
This is a light button that operates cyclically. The first impulse releases the two dry film rolls, while the second one locks them again.
The release is signalled by the light in the button.

4 - VACUUM UPPER OFF/ON /LOWER OFF

This is a three-position light selector that inhibits vacuum in the main vacuum sectors to facilitate dry film loading.
In order to operate in the automatic mode, it is necessary to turn this selector back to its central position (ON).

2.4 PNEUMATIC ADJUSTMENT CONTROL PANEL (picture 8)

This section gives instructions on how to use correctly the commands and the instruments on the control panel placed on the right side of the machine.



Picture 8 - PNEUMATIC ADJUSTMENT CONTROL PANEL

KEY

1- UPPER ROLL TEMPERATURE CONTROL
This is the thermoregulator for setting and checking the temperature of the upper lamination roll.

2 - LOWER ROLL TEMPERATURE CONTROL
This is the thermoregulator for setting and checking the temperature of the lower lamination roll.

3 - "LAMINATION PRESSURE" manometer
This manometer indicates the pressure of the lamination rolls.

4 - "LAMINATION PRESSURE" regulator
This is the regulator for the pressure of the lamination rolls.

5 - "LATERAL CUTTING" selector
This selector enables the lateral cutting.

6 - "VENTILATION" selector
This selector activates ventilation in the cap.

7 - "UPPER FILM STATIC TENSION" manometer
This manometer indicates the tensioning pressure of the upper dry film.

8 - "UPPER FILM STATIC TENSION" regulator
This is the regulator for the tensioning pressure of the upper dry film.

9 - "LOWER FILM STATIC TENSION" manometer
This manometer indicates the tensioning pressure of the lower dry film.

10 - "LOWER FILM STATIC TENSION" regulator
This is the regulator for the tensioning pressure of the lower dry film.

3.1 OPERATOR GUIDE FOR START UP

A) Turn on the machine with the main power switch.

B) The machine will carry out the initial system check-control, then the display will show the message “EVERYTHING OK”.

C) Take out the removable unit.

D) Start the machine by pressing the “SET UP ON” button.

E) Reposition the rotating sectors; the vacuum system will activate to hold the dry film.

F) Place the dry film on the dry film rolls and load it following the diagram on the machine.
Center the dry film using the centering scale. Trim the leading edge of the dry film on the counterblade, being careful not to damage the pad on the tacking bar.

G) Close the removable unit to allow the heating of the lamination rolls.

H) Verify or set the roll temperature.

I) Verify and, if necessary, adjust the lamination roll pressure.

J) Verify or set the lamination parameters.

K) Press the CYCLE START button to start the input roller and accept input panels.

L) Whenever a cycle is started, check the first processed panel for correct lamination and edges.

⇨ **NOTE**

Maintenance and periodic cleaning operations on the machine are extremely important to ensure its correct functioning and for good quality of the processed panels. It is strongly recommended to carry out with utmost care all the operations indicated in the Maintenance Table of this manual; it is advisable, moreover, to affix a copy of the Table on the machine itself.

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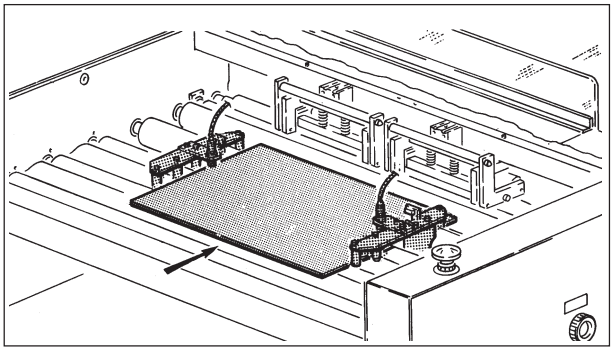
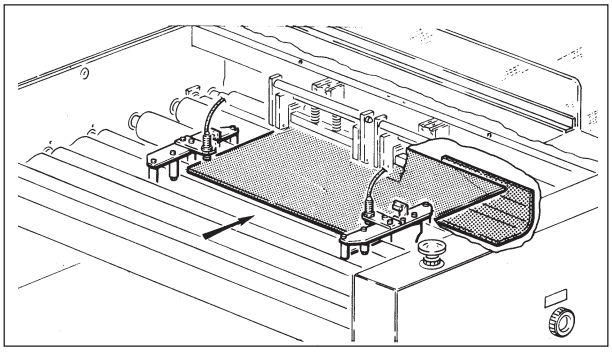
3.2 OPERATING CYCLE

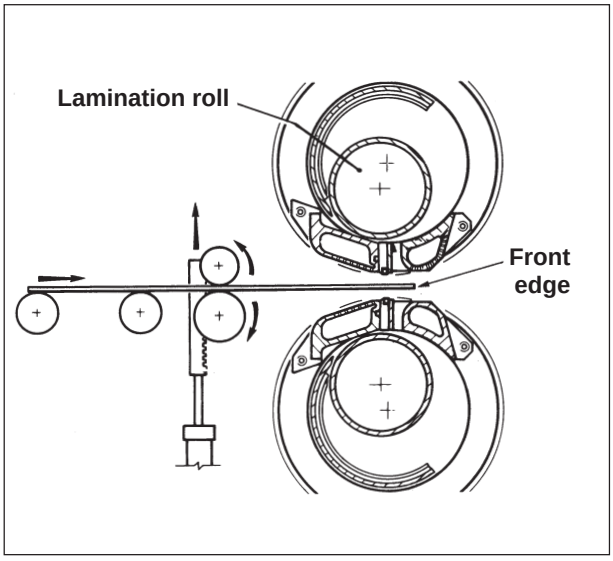
The panel for lamination arrives on the input roller, where it is centered onto the machine center line by the “Soft-Contact” centering unit.



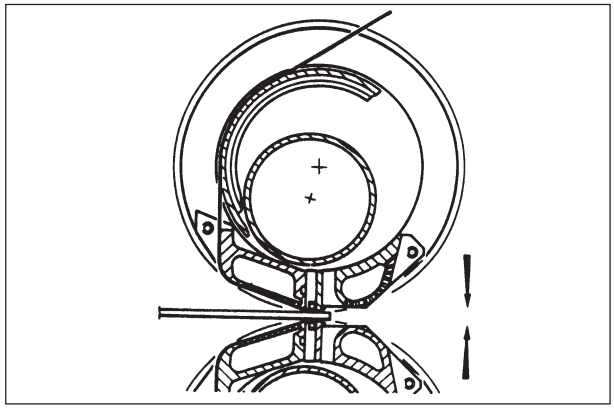
It then stops against a frontal barrier which lines it up with the lamination rolls.



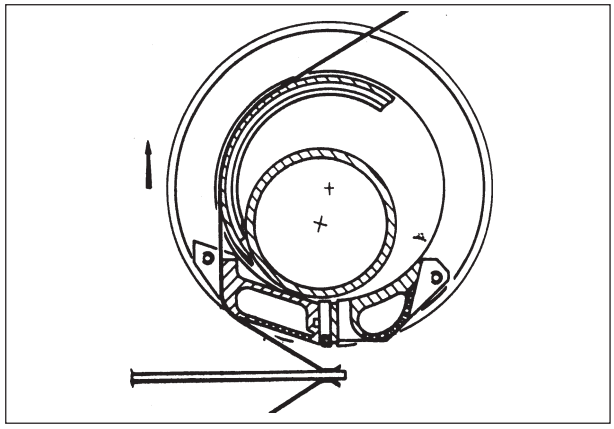
The panel is gripped between two rolls, and inserted between the vacuum sectors, which also include the tacking bars and the counterblades of the shears.



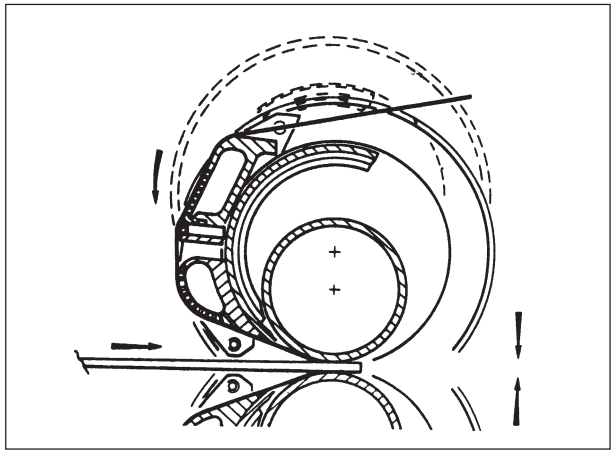
Here the dry film is tacked on both sides of the panel as per the set time and temperature.



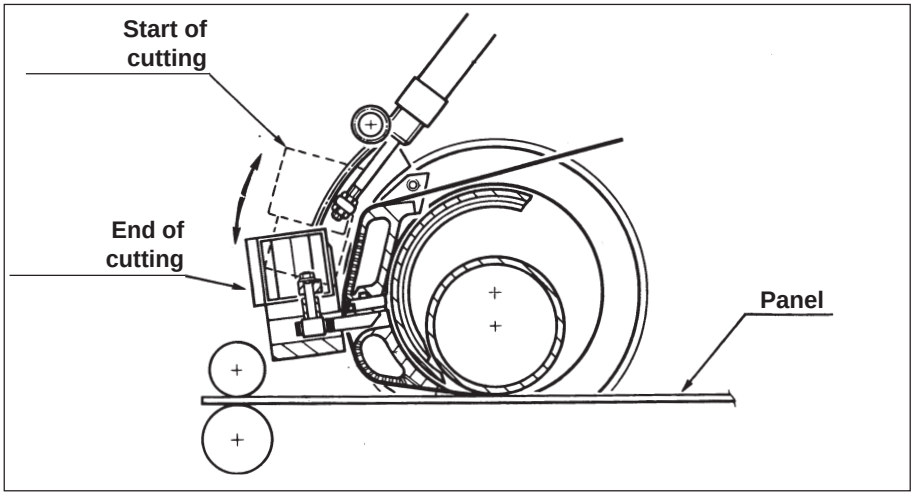
After tacking, the sectors and the tacking bars separate, leaving the dry film stuck to the panel.



Then they rotate to allow the lamination rolls to close down onto the panel precisely at the point of tacking.

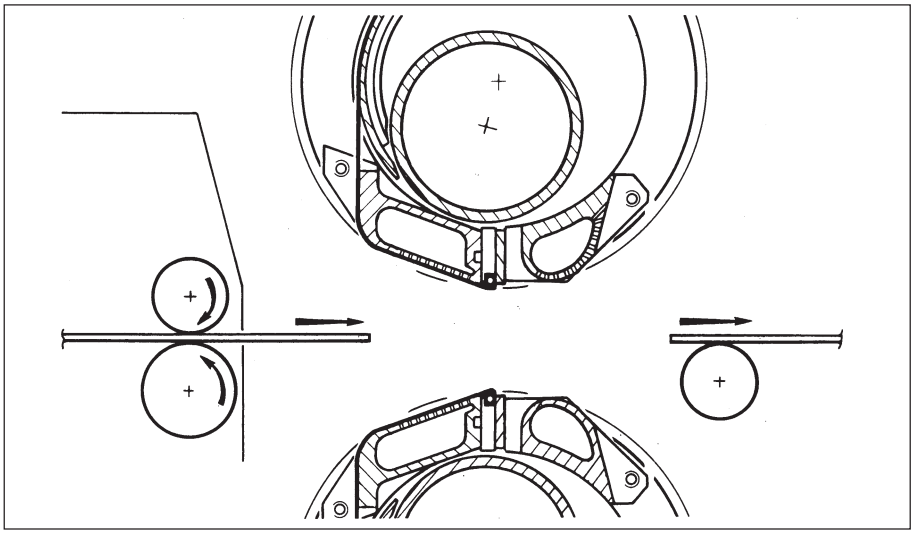


The tension rolls stretch the dry film, and the lamination rolls start to laminate the dry film on the panel. When the PLC send the signal to cut, the vacuum sectors and the counterblades begin moving again following the dry film.
Simultaneously the shear blades close down on the counterblades and cut the dry film.



Once the panel has been completely laminated, the rolls separate and, if there is another panel ready for lamination, the vacuum sectors return to the tacking position.

Meanwhile, the laminated panel has reached the output roller, where its static electricity is discharged and its temperature is read by an IR sensor.



3.3 OPERATIONS OF THE VARIOUS GROUPS

3.3.A	Lateral centering unit.	II - F.1
3.3.B	Frontal centering unit.	II - F.4
3.3.C	Insertion group-front edge.	II - F.5
3.3.D	Rotating sectors - vacuum pump - tacking bars and counterblade.	II - F.7
3.3.E	Electric cams phase diagram.	II - F.8
3.3.F	Rotating sectors in tacking position.	II - F.9
3.3.G	Rotating sectors in rolls closed position.	II -F.14
3.3.H	Rotating sectors in awaiting-start of cutting position.	II -F.14
3.3.I	Coupling of the cutting groups (start of cutting).	II -F.15
3.3.J	Rotating sectors in end of cutting position.	II -F.18
3.3.K	Cutting groups at the end of cutting and their uncoupling.	II -F.19
3.3.L	Cutting on the fly-rear edge-rear edge photocell..	II -F.21
3.3.M	Calibration of the roll speed	II -F.22
3.3.N	Calibration of the rear edge photocell.	II -F.23
3.3.O	Alignment of the rear edge on both faces (upper and lower).	II -F.23
3.3.P	Calculation of the rear edge-correction of parameters and cycle times.	II -F.24
3.3.Q	Cycle times.	II -F.26
3.3.R	Edges on panels of minimum length.	II -F.27
3.3.S	Cutting groups.	II -F.28
3.3.T	Lamination rolls, pressure, heating and thermal alarm message.	II -F.31
3.3.U	Display of the output panel temperature.	II -F.35
3.3.V	Vacuum cutoff valves.	II -F.35
3.3.W	Dynamic tension rolls.	II -F.37
3.3.X	Static tensioning unit (frictions).	II -F.39
3.3.Y	Lateral cutting.	II -F.40

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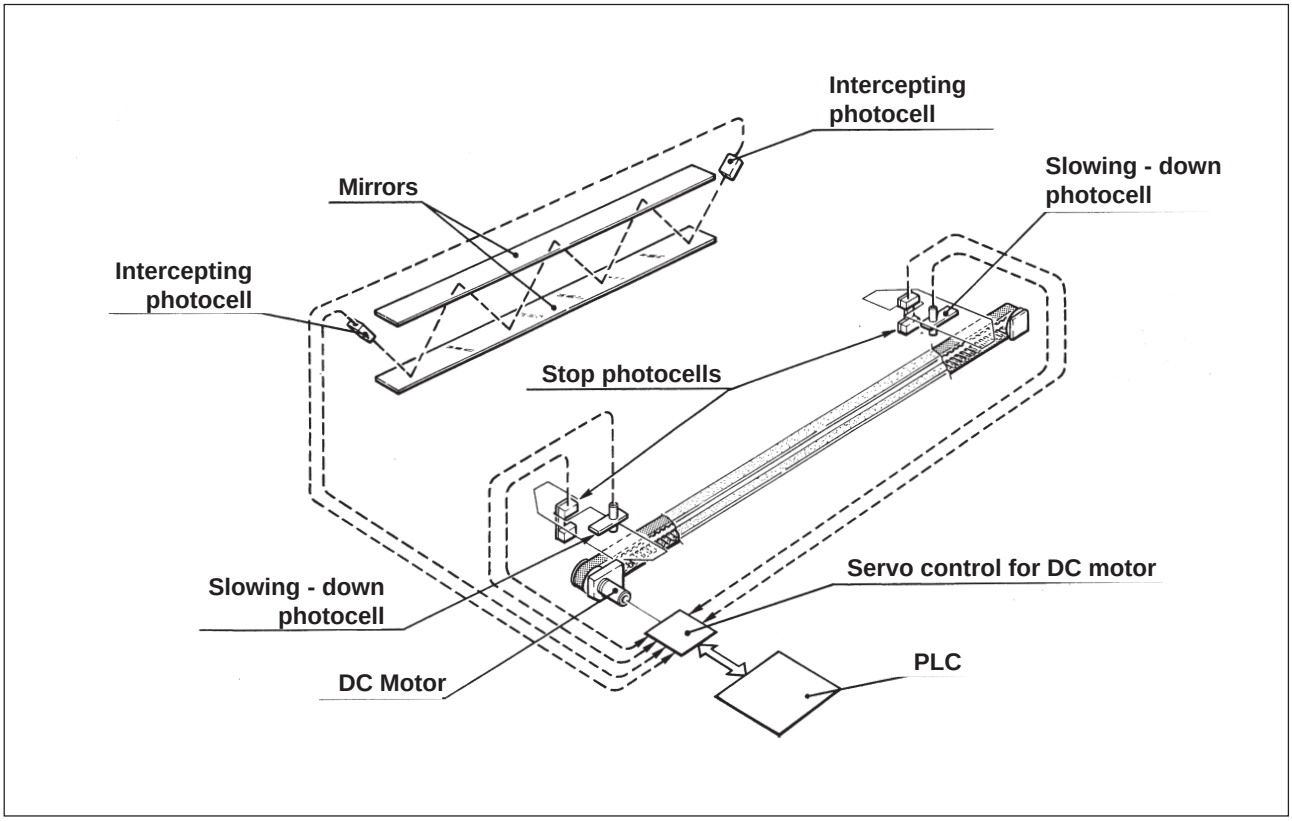
3.3.A LATERAL CENTERING UNIT

3.3.A.1 - Operating cycle

The lateral centering unit is powered by a low inertia D.C. micro-motor and a toothed belt. The motor is controlled by an electronic circuit board (S.C.C.) and by two pairs of photocells (installed on the lateral shoulders) plus another photocell, called intercepting photocell.



When the panel reaches the intercepting photocell (FC69), its presence is signalled to the control panel (S.C.C.). The motor (M5) sets the two lateral shoulders in motion so that when they close they move the panel towards the center of the machine.
When both slowing-down photocells (FC75/76) have been activated by the panel, the motor decelerates immediately, slowly bringing the lateral shoulders near to the panel until the two stop photocells are activated (FC74/FC77).

The motor (M5) stops for the period of time selected on the control panel (S.C.C.). Then, inverting its rotation, it opens the lateral shoulders again and finally stops when the backward stop sensor (FC70) is activated.
Should either the forward movement stop sensor (FC71) or the backward movement stop sensor (FC70) not function for any reason, the safety microswitches (FC72/FC73/FC73A) will take over, cutting off immediately the power supply to the motor and activating a failure message.

3.3.A.2 - Adjustments and calibration of the lateral centering unit

For the correct functioning of the lateral centering unit, it is necessary to allow some gap between the shoulders and the panel when the centering unit is closed.
Calibrate this space as follows:

- switch off the machine and disconnect only one of the cables of the micromotor (M5) placed at the top of the front left crankcase;
- turn on the machine again and, slowly moving the lateral shoulders by hand, center a rigid, well-squared panel, taking care to stop immediately as soon as the stop photocells FC74 and FC77 (left and right) turn off;
- check, in these conditions, the amount of gap between the lateral shoulders rolls and the panel;
- adjust the supports of the stop photocells either to increase or to decrease the gap; the recommended total gap is approximately 1 mm.

It is equally important to check the parallelism of the two lateral shoulders using the same rigid panel. If necessary, adjust their position operating on their fastening screws .

The correct reading distance for the forward and backward movement stop sensors (FC71-FC70) is 1.5 mm. Their position can be adjusted operating on their sensor-holder blocks, which should be locked in place again after the operation.

NOTE

Should the overtravel microswitches (FC72-FC73-FC73A) become activated, it will be necessary to remove the cause (e. g., misplacement of the movement stop sensors, or their failure), and then to release the centering unit by hand.

In order to protect the transistors that power the motor from overheating, their dissipator has been equipped with a 70°C thermal switch.

This thermal switch stops the machine in emergency state, and activates the alarm message:

• **“Lateral centering failure”** (code 421).

The same alarm message is displayed when one of the overtravel microswitches (FC72/FC73/FC73A) is activated.

In order to achieve a precise positioning of the centering, it is very important that the shoulders slow down distinctly once both photocells (left and right) FC75 and FC76 have been activated.

Therefore it is necessary to calibrate the value of “low” speed very carefully, using potentiometer LT.

On the other hand, with potentiometer RM it is possible to calibrate the off cycle time of the lateral shoulders once the panel has been centered.

The maximum cycle time can be determined with potentiometer CL. Once this time has expired, the centering unit reopens, even if the panel has not been centered yet. This is useful, in that it prevents the motor from overloading in the event of mechanical blockage of the centering unit, or any other failure.

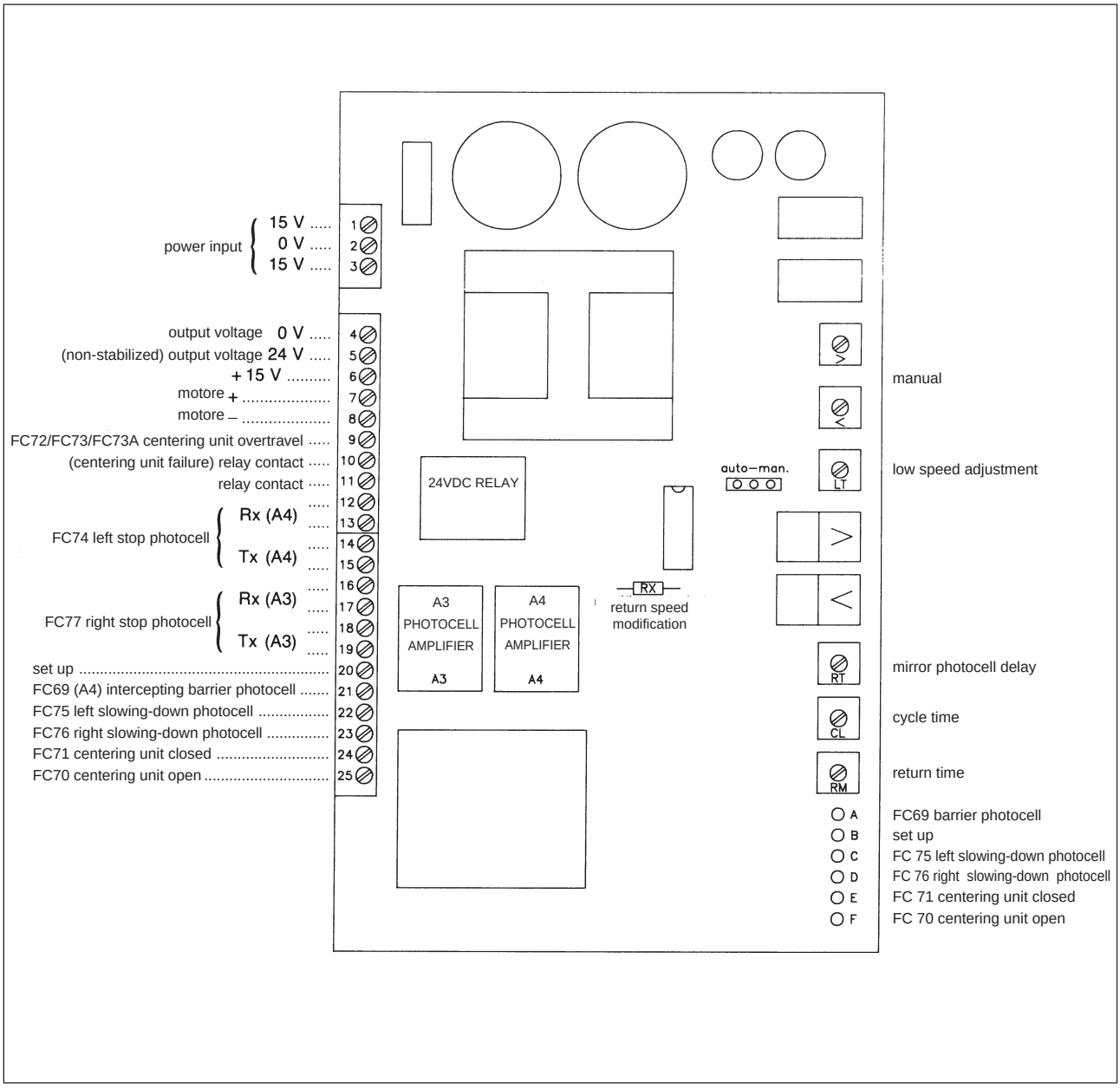
The cycle time allowed should, however, always be longer than the real time needed to center the panel, including off cycle time, otherwise the centering unit would be unable to complete its run and its off cycle pause correctly prior to reopening.

Potentiometer RT, finally, allows to set the off cycle time of the centering unit between one command to close, generated by the intercepting photocell, and the next.

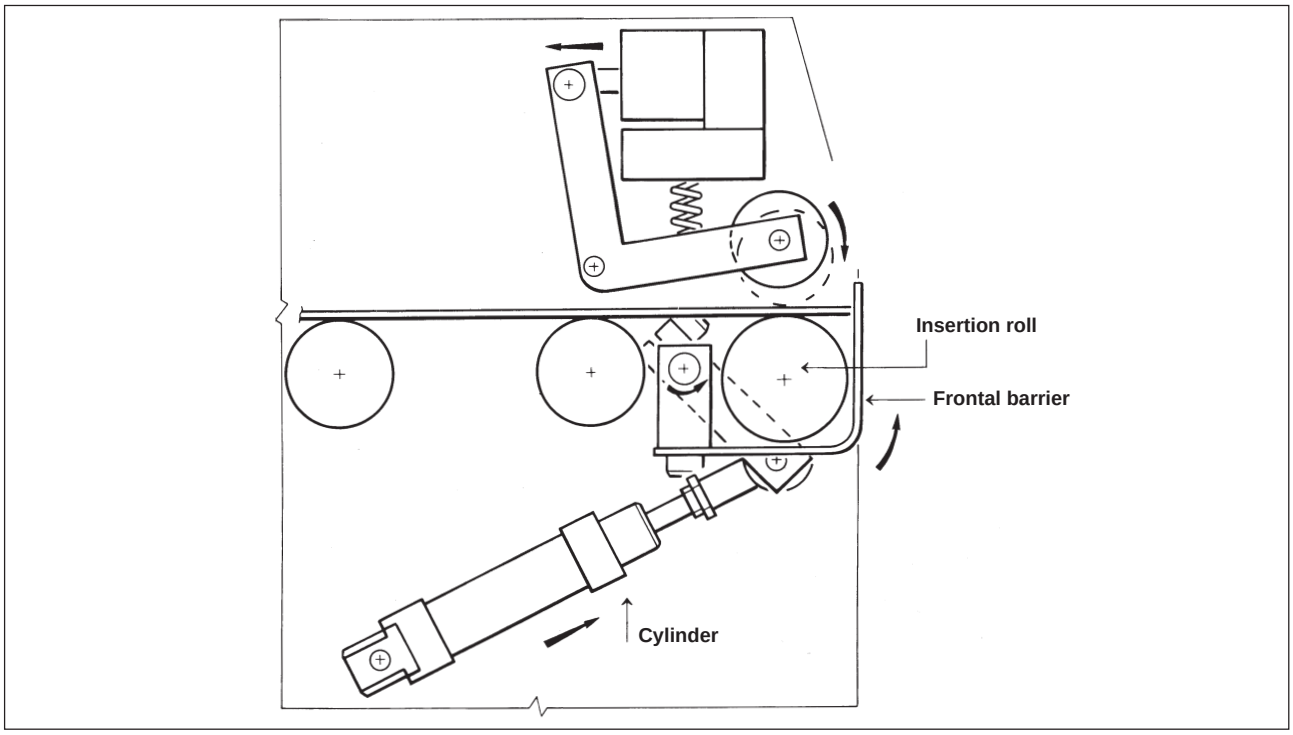
NOTE

Should it be necessary to replace the electronic circuit, all the potentiometers must be recalibrated, “copying” their positions from the previously used electronic circuit.

The electronic board which controls the centering unit cycle has the following configuration:



3.3.B FRONTAL CENTERING UNIT

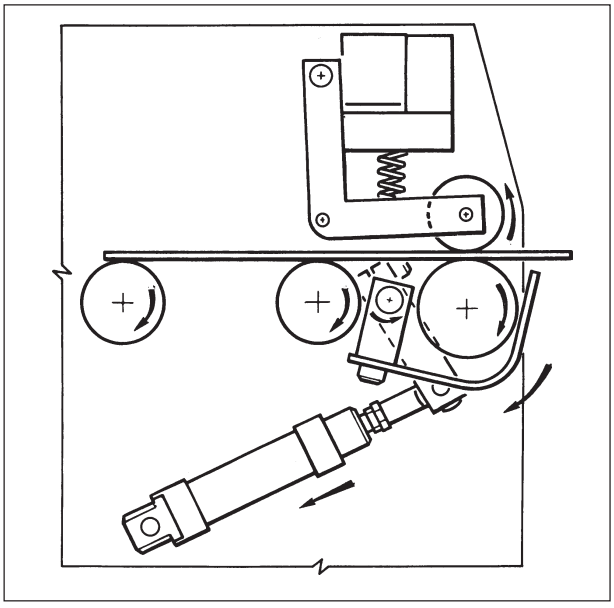


3.3.B.1 - Operating cycle

The alignment of the panel and the lamination line is very important when it is required to laminate with a front edge of 0 mm.
In this case the dry film must not be detached in any way from the panel during tacking.
Alignment is achieved by allowing the panel, pushed forward by the input rollers, to lean against the frontal barrier where it automatically becomes aligned.
This barrier is lowered by its own pneumatic cylinder in order to insert the panel into the machine.
The barrier will be raised again once the panel has passed completely through the insertion group (see picture besides).

3.3.B.2 - Calibration

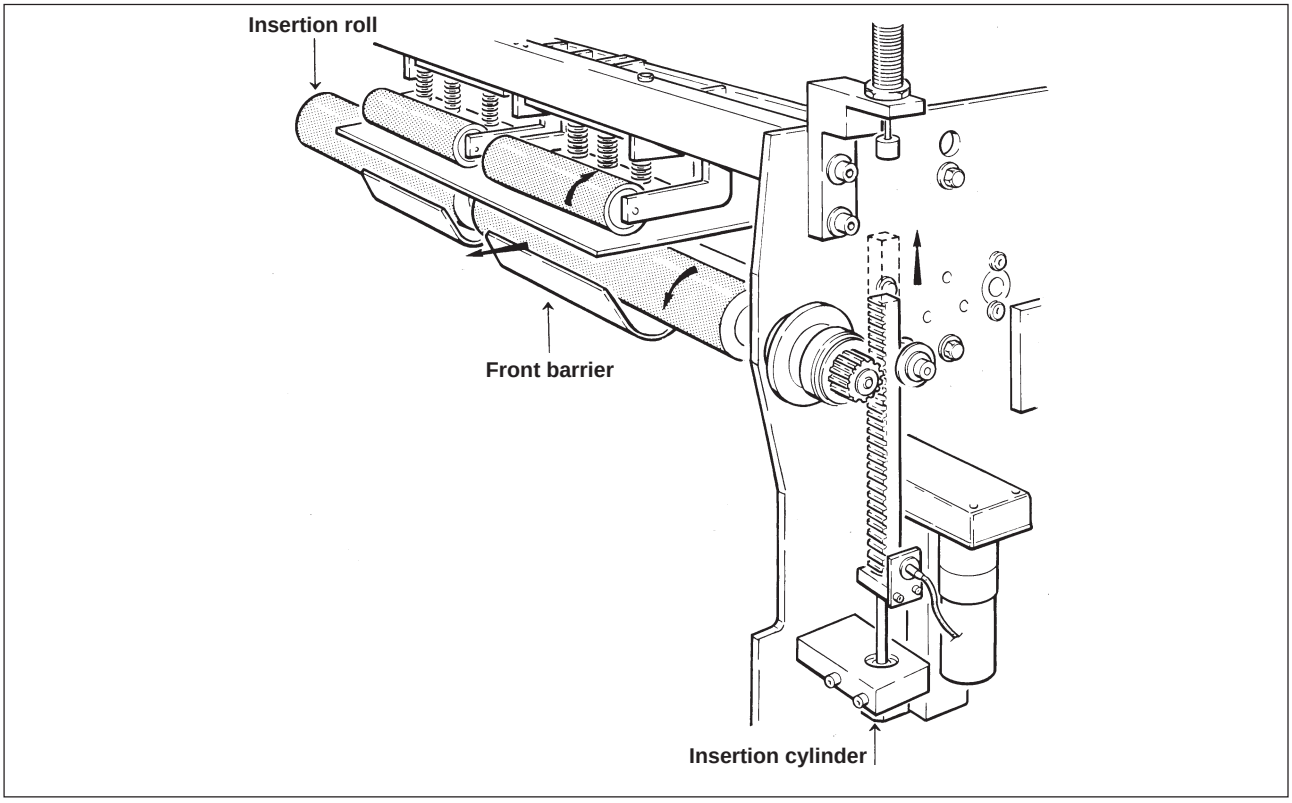
The misalignment of the panel with the rolls can be corrected by working on the fastening screws of the frontal barrier.
It will be necessary to make minute successive adjustments, and measure each time the result with some laminated panels.
The cylinder which moves the barrier has two sensors (FC18 and FC19) for forward and for backward movement.



If neither of these are activated within a time limit of 5 seconds from the movement command, the following alarm messages will be displayed:

- **"Barrier up movement not completed"** (code 180)
- **"Barrier down movement not completed"** (code 190).

3.3.C INSERTION GROUP - FRONT EDGE



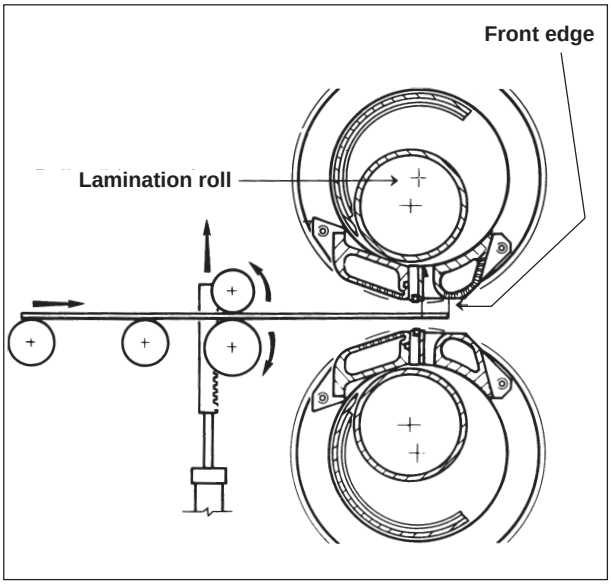
3.3.C.1 - Operating cycle

The task of the panel insertion group is to push the panel between the tacking bars. Normally the lower roll turns at the same speed as the input roller. Once the panel has been aligned against the frontal barrier, the lower roll stops, while the upper one is lowered on the panel to grip it. The frontal barrier is lowered by its cylinder, while the insertion cylinder extends fully and makes the lower roll turn, thus pushing the panel forward.

The distance covered by the panel depends on the number of revolutions and fractions of revolutions made by the lower roll, i.e. on the stroke of the insertion cylinder and its rack.

The motion of the lower roll is therefore generated either by the input roller or by the rack insertion group. The switching between these two movement forces is achieved by means of electromagnetic clutches (FZ5-6-7) activated by the PLC.

If the panel is pushed to the exact edge of the tacking bars, it will have a front edge of 0 mm. On the other hand, if it is pushed 50 mm beyond this edge, it will have an edge of 50 mm.



In order to calibrate the stroke of the insertion cylinder, and consequently the panel front edge, a sliding mechanical register has been fixed to the cylinder rod.
This register is powered by a D.C. micromotor (M6) controlled by an electronic circuit (AZ3), which receives the information on the exact position of the register from a position transducer (P6).
When the PLC transmits a command to move the register to a certain position, the positioner compares the present position and the one to reach, then commands the motor to turn one direction or the other until the transducer transmits the information that the new position has been reached.
In order to prevent the group from overshooting the limit of its mechanical stroke because of some failure, two overtravel microswitches have been installed (FC100/FC110); when activated, they stop the motor (M6) immediately.

NOTE

When the two overtravel microswitches (FC100/FC110) are activated, it is necessary first to eliminate the cause of the failure, then to release the group, rotating the motor gears by hand until the microswitches are cleared.

Also the control circuit of this group has been equipped with a thermal switch, set at 70°C.
The activation of either of the two overshoot microswitches or of the thermal switch will stop the machine in emergency state, and display the alarm message:

- **"Front edge device movement failure"** (code 381).

Replacement of the electronic circuit of the front edge register does not require any readjustment of offsets or electric calibration.

Front edge:

The front edge can vary between 0 and 50 mm only if the panel is longer than 250 mm. This is because the distance between the insertion roll and the lamination line is approximately 200 mm. Since the machine accepts panels with minimum length of 210 mm, the front edge should take the following relation into account:

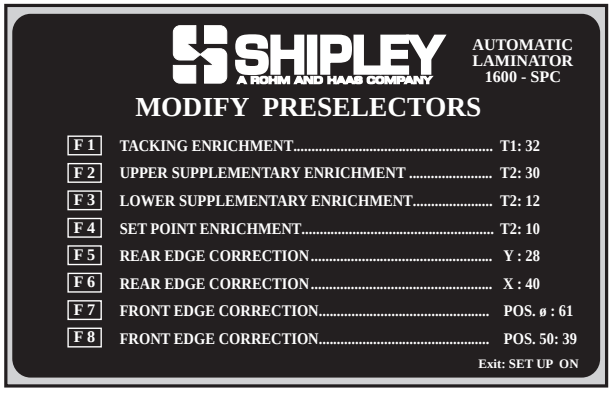
- **Maximum possible front edge** = length of panel - 210 mm (not more than 50 mm)

3.3.C.2 - Calibration

The ratio between the insertion cylinder stroke and the front edge is 1.66.
Therefore 10 mm of front edge on the panel correspond to 6 mm of cylinder stroke.

The insertion group guarantees the highest level of repeatability of the front edge over the long period. Nevertheless, should it become necessary to correct possible differences between the preset edge and the real edge, proceed as follows:

- On the page "**Modify Preselectors**" it is possible to correct the offset of "Pos. 0" and "Pos. 50" of the front edge.


SHIPLEY
A ROHM AND HAAS COMPANY
AUTOMATIC LAMINATOR 1600 - SPC
MODIFY PRESELECTORS
F 1 TACKING ENRICHMENT..... T1: 32
F 2 UPPER SUPPLEMENTARY ENRICHMENT T2: 30
F 3 LOWER SUPPLEMENTARY ENRICHMENT..... T2: 12
F 4 SET POINT ENRICHMENT..... T2: 10
F 5 REAR EDGE CORRECTION..... Y : 28
F 6 REAR EDGE CORRECTION..... X : 40
F 7 FRONT EDGE CORRECTION..... POS. ø : 61
F 8 FRONT EDGE CORRECTION..... POS. 50: 39
Exit: SET UP ON

- The "**Zero edge**" position, to which corresponds an equal measurement for panel and dry film, is set on the display with the reference "**Pos. 0**".
- The "**50 mm edge**" position, corresponding to 50 mm of panel uncovered by the dry film, is set on the display with the reference "**Pos. 50**".

NOTE

- *The operator must therefore first set a front edge of 0 mm on the display, then increase the figure of the reference "Pos. 0" if the dry film is longer than the laminated panel, or decrease the figure if the dry film is shorter than the laminated panel.*
- *Once the position for zero edge has been corrected, it is necessary to set a front edge of 50 mm and increase the figure of the reference "Pos. 50" if the edge is less than 50 mm, or decrease it if the edge is more than 50 mm.*

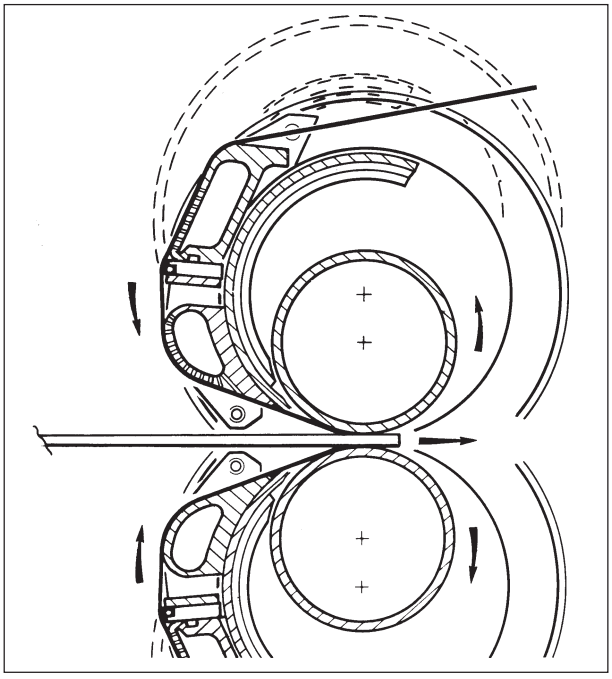
3.3.D ROTATING SECTORS - VACUUM PUMP - TACKING BARS AND COUNTERBLADE

3.3.D.1 - Operation

The function of the upper and lower vacuum sectors is to hold the dry film and convey it from the start of cutting position to the tacking position.

A vacuum pump, installed in the front compartment of the machine, ensures that the dry film adheres to the vacuum sectors.

Vacuum is cut off by valves installed between the pump and the rotating sectors.



NOTE

- *Vacuum in the vacuum sectors is cut off during the lamination phase, and restored when the vacuum sectors start to rotate again to carry out the cutting operation.*
- *Vacuum is kept in the vacuum sectors from the beginning of the cutting operation until the next tacking has taken place.*

The secondary vacuum sectors are positioned beneath the main vacuum sectors.
The upper unit holds the dry film after it has been cut, to prevent it from falling back onto the panel.

The lower unit does not need to be under vacuum because the dry film adheres to it by gravity.

Both the tacking bars and the counterblades are fixed to the main vacuum sectors, and therefore rotate jointly with them.

A rotating mercury connector (Mercotac), placed on the left side of the vacuum sectors, provides electrical power to the tacking bars.

The resistive element for heating the tacking bars is placed inside the rubber.
Each element has a value of approximately 17 and a power of approximately 150W.

The heating elements are powered with a 50V voltage, and are equipped with a device (SRT) which regulates their ratio between time ON and time OFF.
The analogue regulation has a range between 0% and 100%. At 0% the tacking bars temperature equals room temperature, and at 100% it is approximately 45°C.

NOTE

It should be noted that the tacking bars temperature is influenced by the temperature of the lamination rolls, therefore variations from the declared values may be found.

It should also be remembered that the temperature of the tacking bars is not all that determinant for a successful lamination process. This is due to the fact that after tacking the panel does not move on until roll-lamination starts.

The counterblades of the shearing system are screwed to the tacking bars, therefore they move together with the entire rotating sector when a cut has to be made.
Both rotating groups are moved by the main motor through an electromagnetic clutch (FZ1) situated on the left side of the machine.

3.3.D.2 - Adjustment and calibration of the positions of the rotating sectors

The rotating sectors, together with the tacking bars and the counterblades, have three different stop positions during the cycle.

3.3.E ELECTRIC CAMS PHASE DIAGRAM

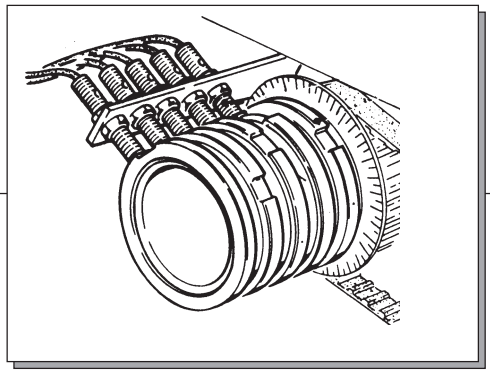
FC 39 Cam for closing lamination rolls

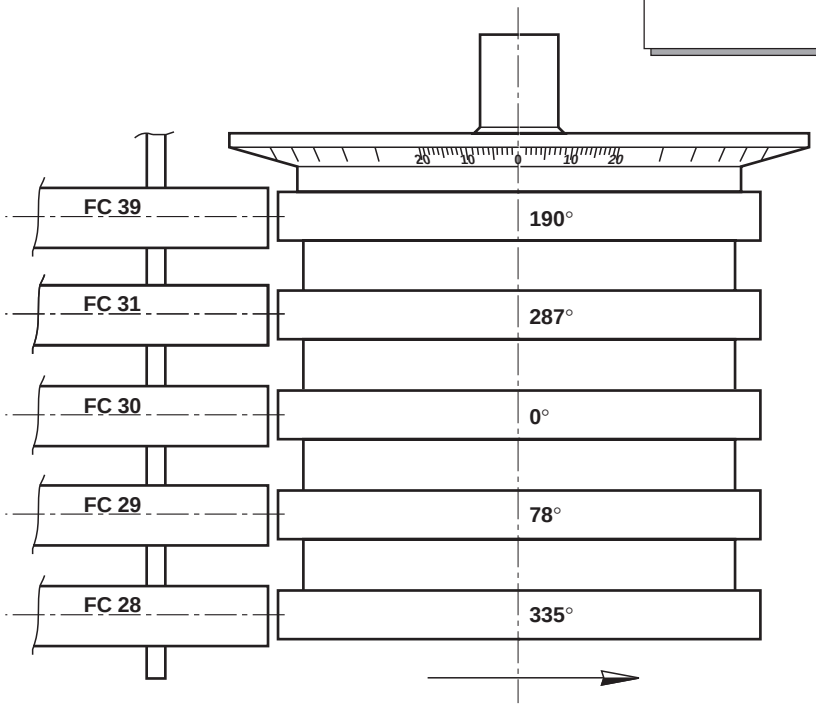
FC 31 Cam for sectors slowing-down position

FC 30 Cam for end of cutting position

FC 29 Cam for tacking position

FC 28 Cam for start of cutting position



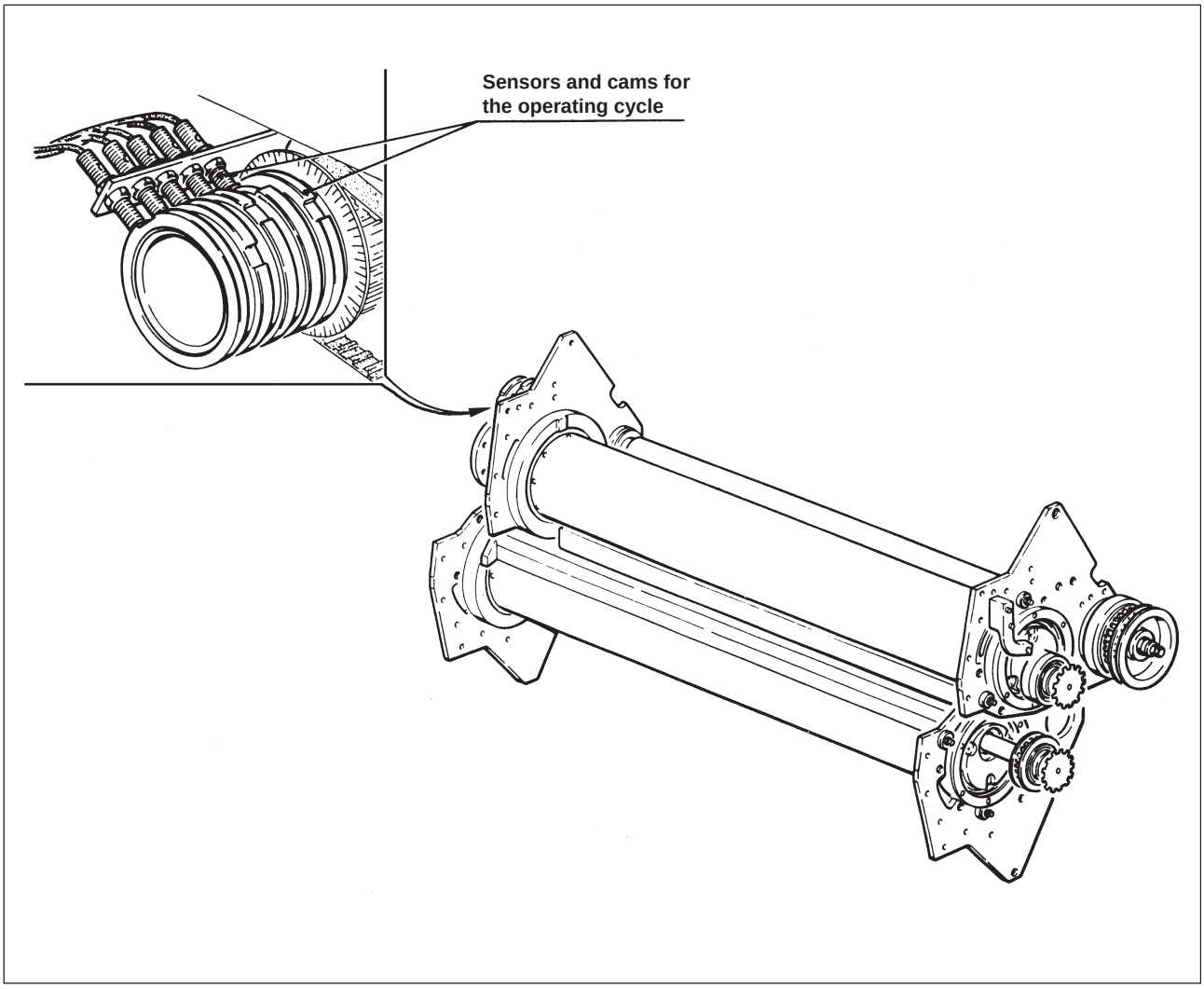


3.3.F ROTATING SECTORS IN TACKING POSITION

The phase is read by an electric cam and by its sensor (FC29).

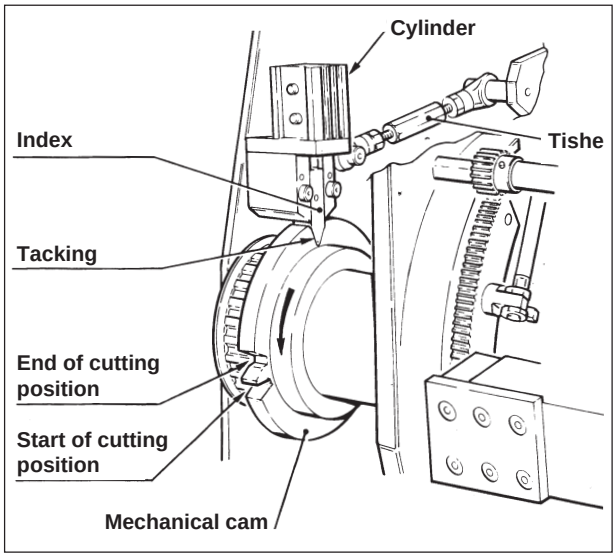
When the sensor (FC29) identifies the slot in its own electric cam, the PLC disengages the clutch for the sectors and inserts the indexes into the tacking slot of the mechanical cam.

The position and its repetitivity is thus guaranteed by the index.
Should it be necessary to anticipate or delay the command to activate the index, it can be done by changing the position of the electric cam connected to sensor FC29, fastening the cam with its own screws once completed the operation.



NOTE

The position of the electric cam does not influence the position of the mechanical cams or of the sectors. Their position can be adjusted by regulating the tishes of the indexes, situated on the left side of the machine (see picture below).



It is important to perform this operation with the utmost care and skill. Proceed as follows:

- Switch off the machine and bring the rotating sectors to the tacking position by hand.
- Insert the indexes, in order to block the sectors, activating the electrovalve (EV25) either by hand or via the keyboard from the page "**Manual movements**" (see flowchart).
- Insert a panel between the sectors, then close them as for a tacking operation, activating the electrovalve (EV19).
- Go to the rear of the machine and check that the distance between the counterblades and the rear edge of the machine shoulder is 347.5 mm (see picture below).
- If it is necessary to adjust this distance, separate the two sectors by unenabling the electrovalve (EV19).
- Turn the upper and lower tishes clockwise to move the pads (or tacking bars) toward the rear of the machine (see picture a);
  conversely, turn the tishes counterclockwise to move the pads toward the front of the machine (see picture b).

FIG. A

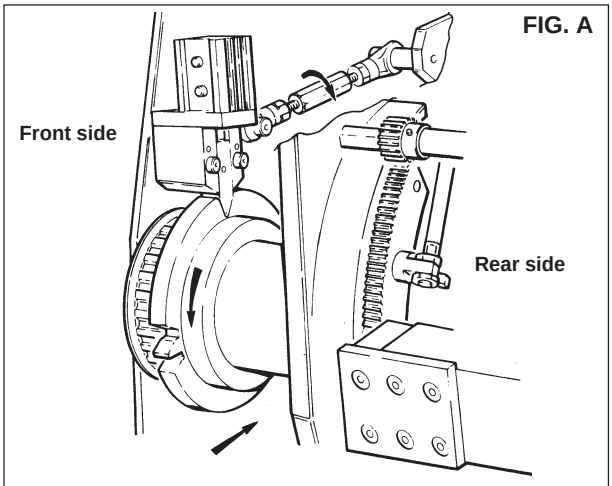
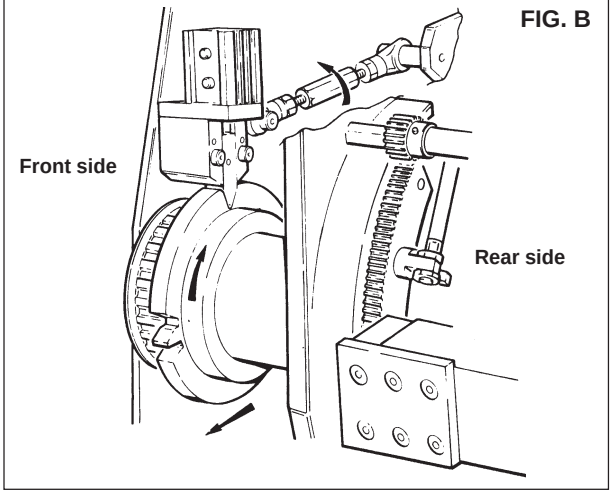
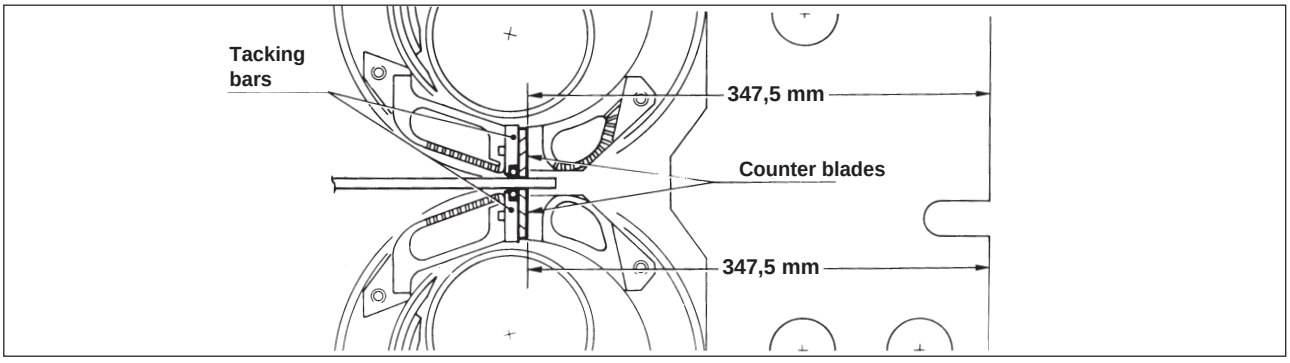


FIG. B



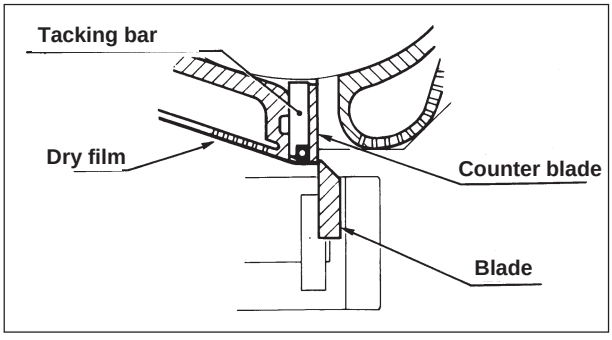


- Close the sectors again and read the new measurement. Repeat the operation until the desired value is obtained.
- Calibrate the lower sectors, too, until they are perfectly aligned, then fasten the two tishes.

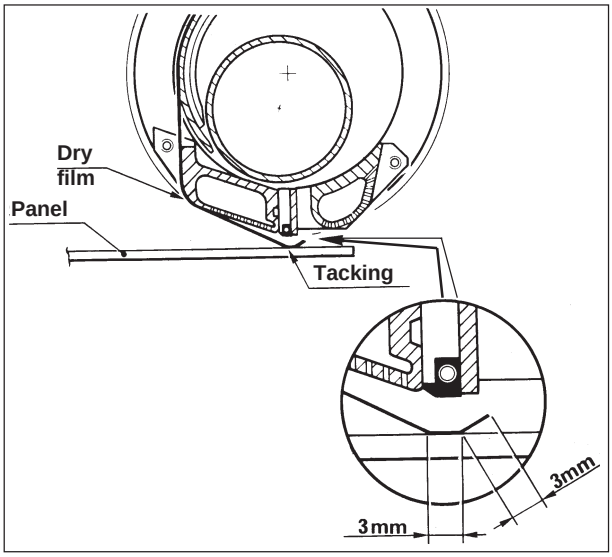
NOTE

The position of the tacking bars compared to the tangent line of the rolls is a decisive factor in preventing the formation of bubbles in the first millimetres of lamination.

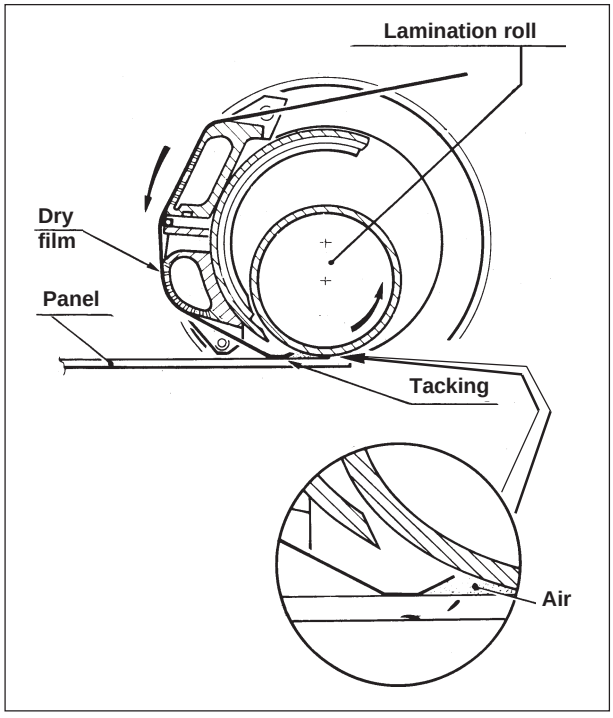
The operating cycle of the laminator, as described above, requires that the rolls close down on the panel at the exact point where tacking was carried out.
Due to the width of the counterblade, the dry film is cut 3 mm beyond the edge of the tacking bar pad.



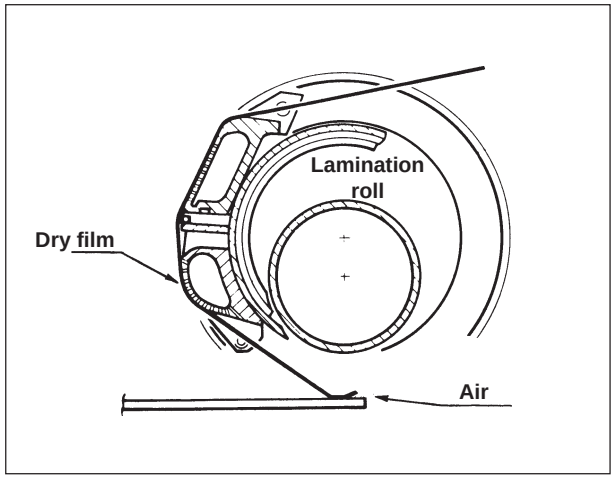
When the dry film is tacked on the panel, therefore, the first 3 mm of dry film cannot be stuck to it.

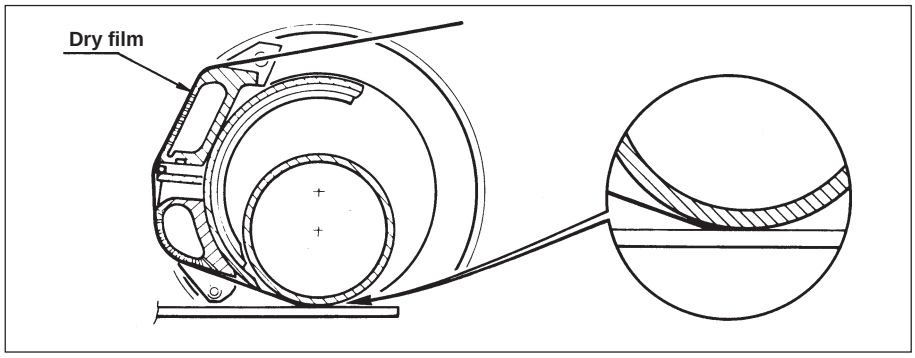


This strip of dry film must thus be stuck down by the lamination rolls.
If the lamination rolls close on the panel ahead of the tacking area, the air underneath the 3 mm of non-stuck dry film will be unable to escape and, trapped between the tacking and the lamination roll, will create large bubbles.



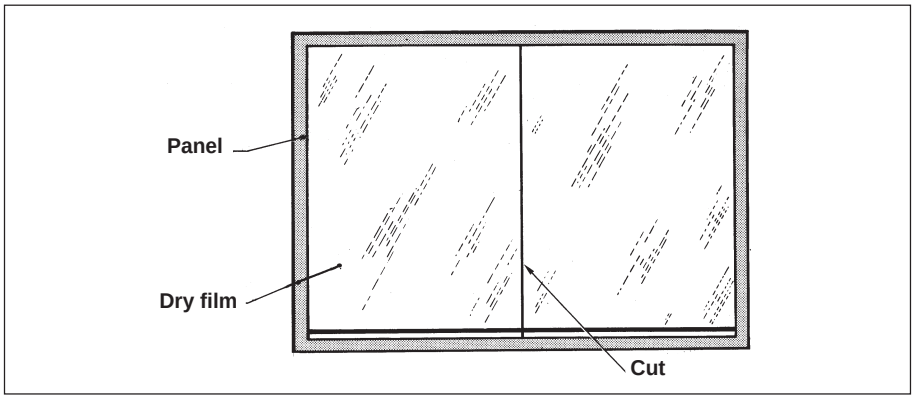
If, on the other hand, the roll comes down precisely on the end of the tacking line, as its rubber is gradually compressed, these 3 mm of dry film will be pressed on the panel, allowing air to escape through the front edge.



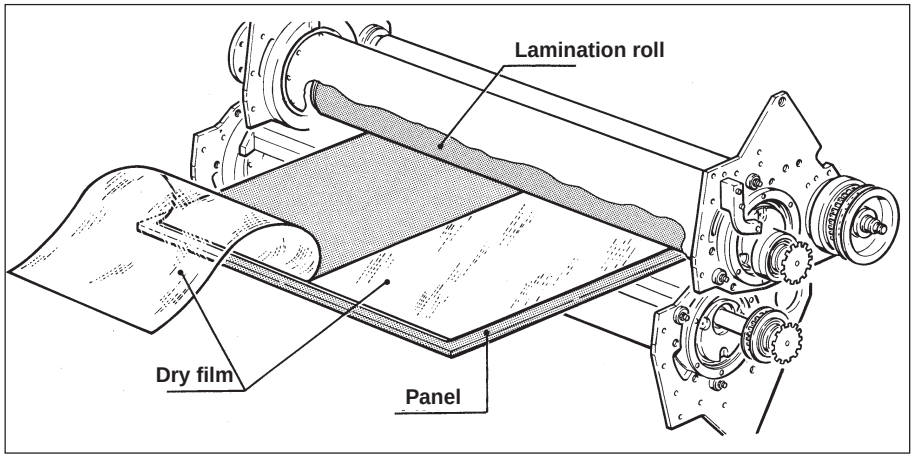


Since the roll footprint is approximately 9 mm, while the tacking footprint is only 3 mm, when the roll presses down, it can completely cover both the dry film strip already stuck by tacking and the 3 mm strip that has not adhered yet.
It is possible to check the precise position of the pads compared to the rolls as follows:

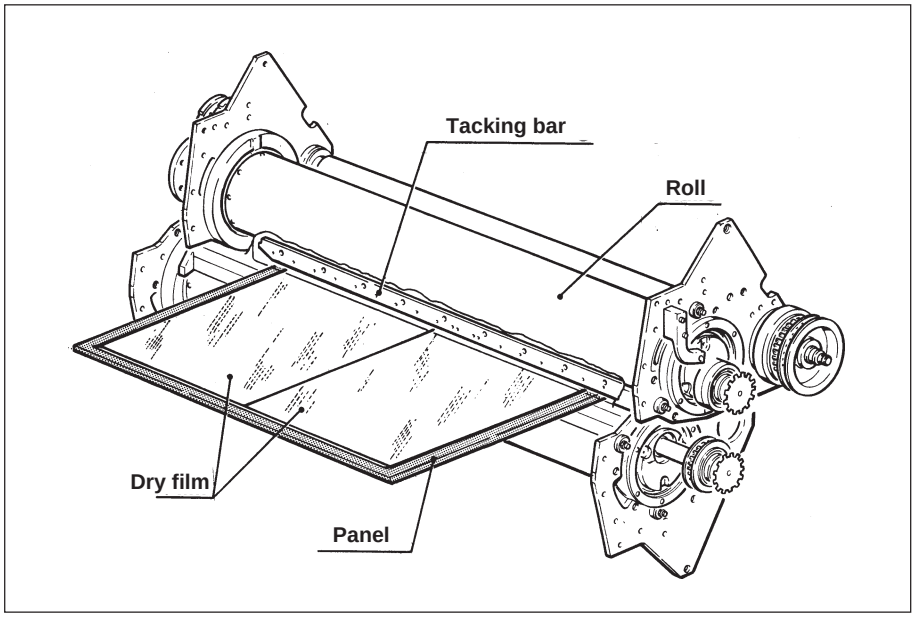
- Switch off the machine, remove the central unit and turn the rotating sectors by hand, bringing them to the position opposite the one of tacking.
- Take a rigid panel and lay a piece of dry film over it, attaching it by hand to only one side of the panel.
- Using a knife, make a vertical cut along the dry film without detaching it from the panel.



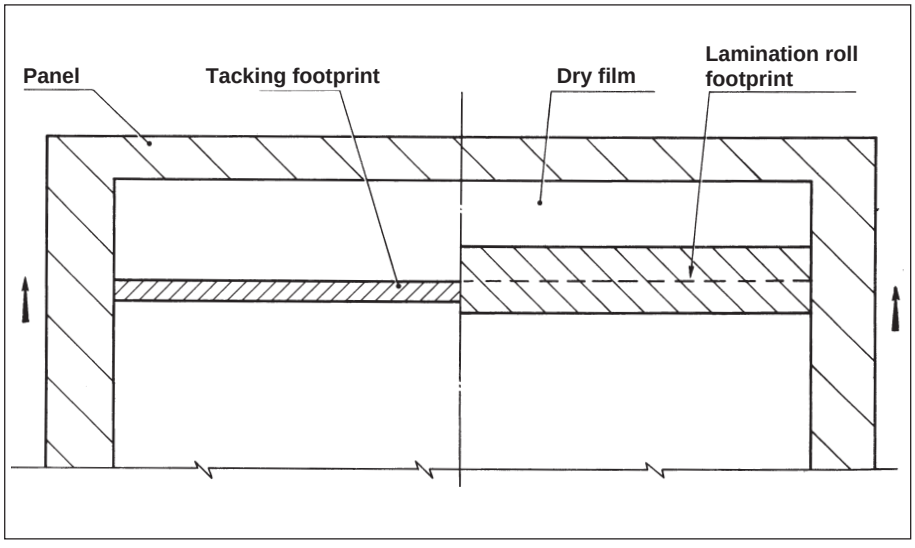
- Insert the panel between the lamination rolls, keeping one of the two strips of dry film folded back from the panel.



- Using the manual commands, activate EV19 in order to close the lamination rolls on the panel; reopen them after a few seconds.
- Take care not to move the panel from its position once the rolls have opened (attach it firmly to the support rollers with adhesive tape).
- Lay the other half of the dry film on the panel, and turn the rotating sectors to the tacking position.
- Insert the indexes activating the electrovalve EV25 and close the sectors (=rolls) again for a few seconds in order to carry out the tacking operation (EV19).



- Separate the sectors, remove the panel and check whether the two footprints - that of the rolls and that of the tacking - match with the following sketch:



3.3.G ROTATING SECTORS IN "ROLLS CLOSED" POSITION

Once the tacking has been carried out, vacuum is cut off in the rotating sectors, which move away from the panel and, after engaging the electromagnetic clutch (FZ1), begin to rotate at their top speed in order to allow the rolls to close down on the panel as rapidly as possible.

As soon as the sectors reach the rolls closing position (see electric cams phase diagram), the PLC commands the rolls to close, activating electrovalve EV19.

The electric cam which gives the PLC the rolls closing position, called "cam for closing lamination rolls", is situated on the left side of the machine and is connected to sensor FC39.

In order to calibrate this position precisely, it is necessary to turn the sectors by hand and stop them in the position opposite the one of tacking.

Next, close the rolls using the manual command of EV19 and move the sectors backwards until they get to the minimum possible distance from each other at the rear of the machine.

⇨ NOTE

Check whether sensor FC39 is able to identify the slot of its own cam in these conditions.

Should it be necessary to correct its position, loosen the locking screws and turn the cam the required direction. Tighten the screws again once the operation is finished.

3.3.H ROTATING SECTORS IN "AWAITING-START OF CUTTING" POSITION

When the rolls start their closing movement, the sectors are turning at their top speed to reach the "Awaiting-Start of cutting" position.

To allow the sectors to come to a gradual stop, the PLC receives a signal from an electric cam, called "slowing-down cam", which is connected to sensor FC31.
This cam is positioned as to be ahead of the "Awaiting-Start of cutting"position (see electric cams phase diagram).

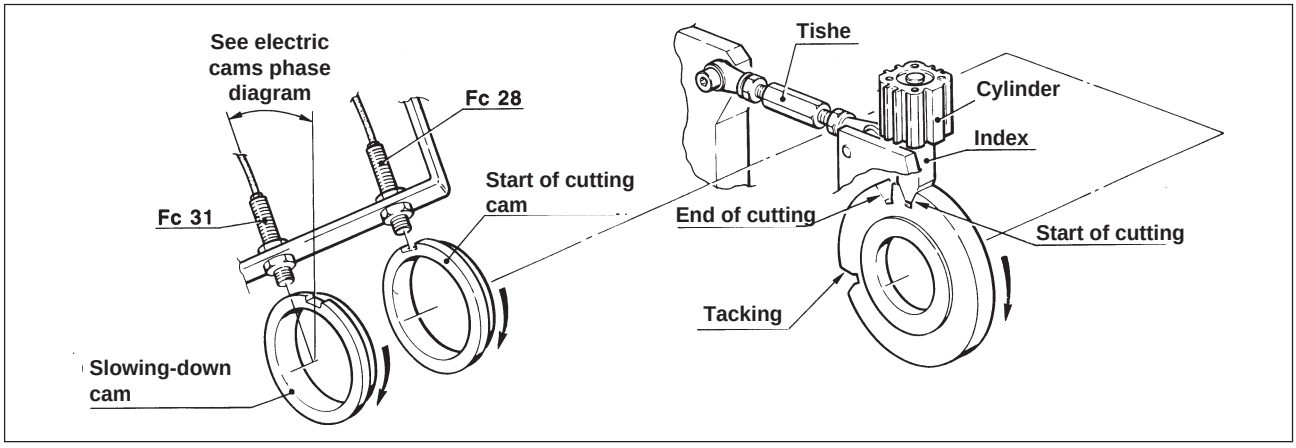
From this point onwards the speed of the two sectors is reduced until the electric cam connected to sensor FC28 (start of cutting cam) is activated.

As soon as the PLC receives this signal, it disengages the electromagnetic clutch (FZ1) of the rotating sectors and inserts the indexes in the slots of the mechanical cams.

⇨ NOTE

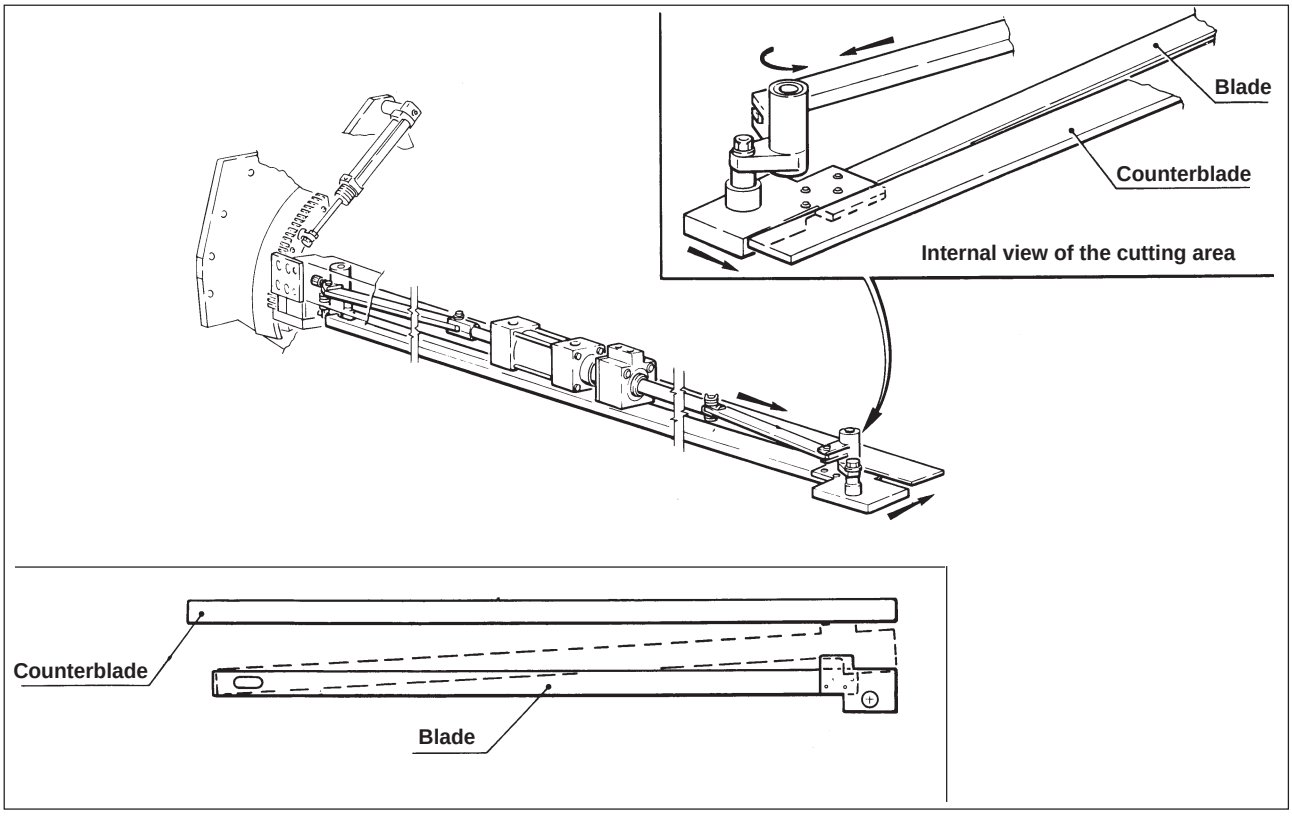
- The start of cutting position and its repeatability are determined by the design of the mechanical cam.
- *We recommend, therefore, never to use the tishes to change this position, because also the tacking position and the end of cutting position, previously set, would be changed.*

Should it be necessary to anticipate or delay the insertion of the indexes into the mechanical cams, the "Awaiting-Start of cutting" electric cam must be anticipated or delayed with respect to its own sensor FC28. Remember to fasten the cam firmly with its screws after this adjustment.



3.3.I COUPLING OF THE CUTTING GROUPS (START OF CUTTING)

When the rotating sectors are in the “Awaiting-Start of cutting” position, the upper and the lower cutting groups are coupled to them by means of the movable blades.



The coupling of the groups to the sectors allows them to be drawn, moving in synchronism, following the dry film during the cutting phase.
The coupling is possible because the movable blade is placed obliquely by the first of the two cylinders which make up the blade movement. The coupling process is managed by the electrovalve EV20 for the upper and the lower cuts.
The position where coupling (or uncoupling) takes place is detected by two sensors, FC26 for the upper cut and FC27 for the lower. If the two sensors are not activated (or unenabled) within the time limit of 5 sec., the PLC stops the machine in emergency state, displaying the alarm message:

- **“Top & bot cut hooking movement failure”** (code 2670).

Once the coupling has taken place, the movable blades and the counterblades must not get in touch until the sectors start to move.

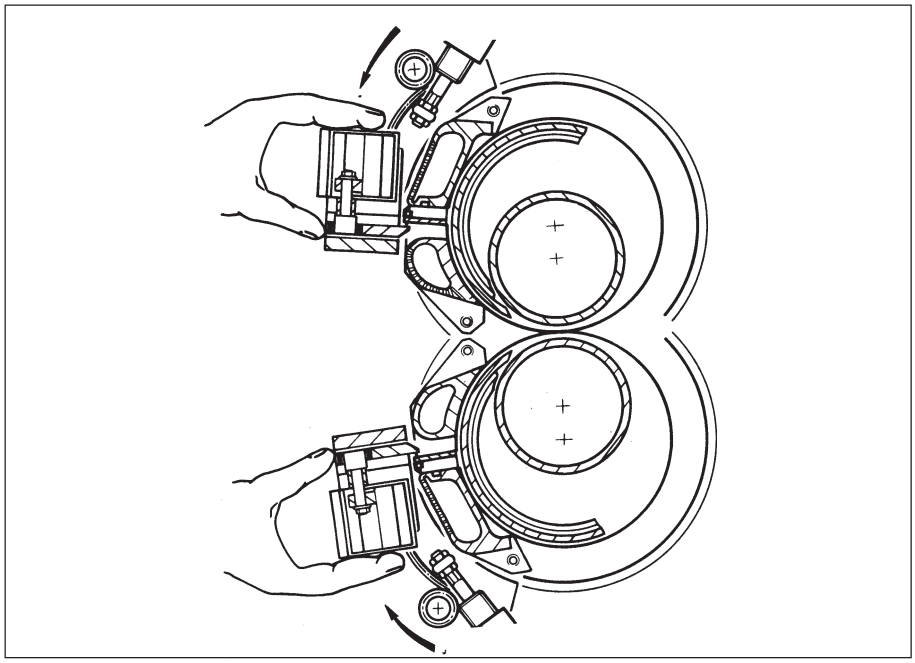
Therefore, between the two blades there should be a clearance of:

- 2 mm (upper and lower) without any panel between closed rolls;
- 0.7 mm (upper and lower) with 3 panels, each 1.6 mm thick, (total 4.8 mm) placed between closed rolls.

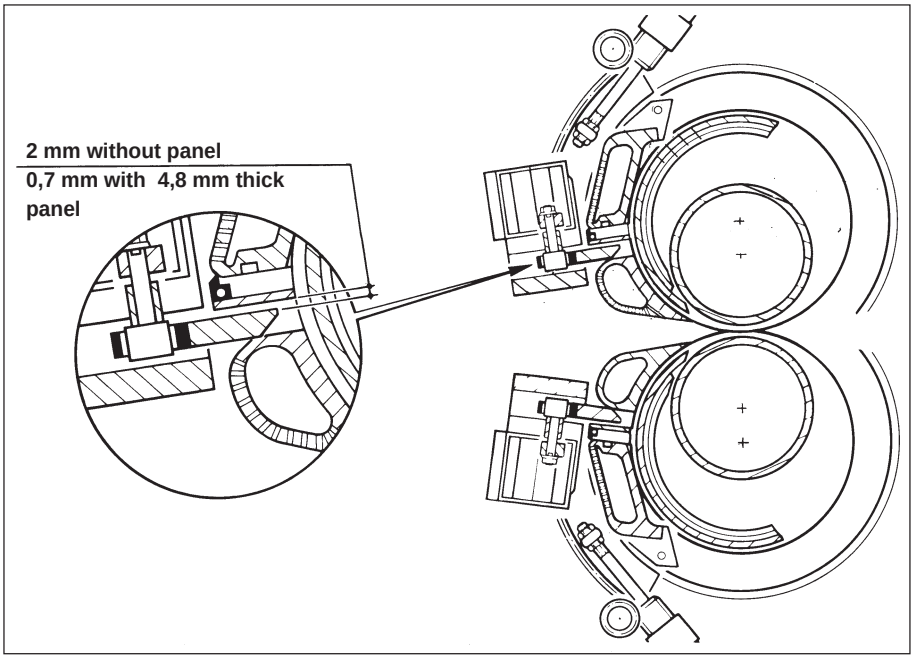
Should it be necessary to verify or calibrate this distance, the recommended procedure is as follows:

1. Switch off the machine, take out the removable central unit, and place the rotating sectors in the position opposite the one of tacking.
2. Close the lamination rolls by means of the manual command of EV19, without inserting any panel between them.
3. Turn the sectors by hand to the “Awaiting-Start of cutting” position, and activate manually the electrovalve EV25 in order to insert the indexes into the slot of the mechanical cams.

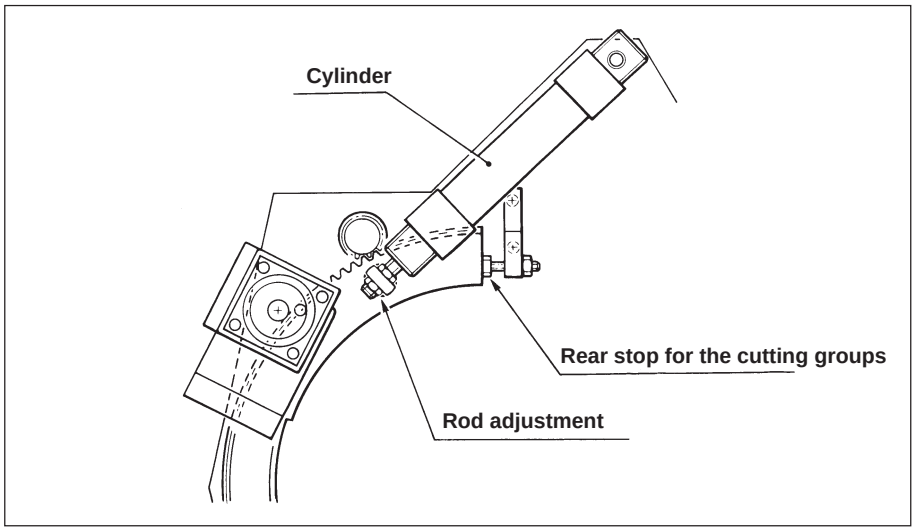
4. Move by hand the two cutting groups (upper and lower) into the space between the main and the secondary vacuum sectors.



5. Keeping them firmly in this position, give the command to couple the cutting groups by activating the electrovalve EV20 (upper and lower).
6. Release the two cutting groups and let them come slowly to set point.



7. Using a thickness gauge, check that the distance between the coupling tooth of the movable blade and the counterblade is as indicated in the above table (2mm).
8. Should it be necessary to correct such distance, adjust it by working on the right and left rear stops of each cutting group.



9. Bring manually the cutting groups back towards the center of the vacuum sectors and uncouple them by deactivating EV20, then return them to their set point position.
10. Remove the indexes and open the rolls.
11. Insert three 1.6 mm thick panels between the rolls, then repeat the entire procedure starting from point 2., checking that the distance between the coupling tooth of the blades and the counterblades is correct (0.7 mm) for both the upper and the lower units.
12. In order to ensure a stable coupling between the blades and their counterblades as the rotating sectors turn during the cutting phase, the upper return cylinders of the cutting groups move the opposite direction, thus offering resistance to the rotatory motion of the sector itself.

Due to the effect of gravity, the lower group does not need any help from its cylinder, as its own weight is sufficient.
In any case, it is advisable that the resistance force should not be excessive, because it could slow down or even stop the movement of the rotating sectors.

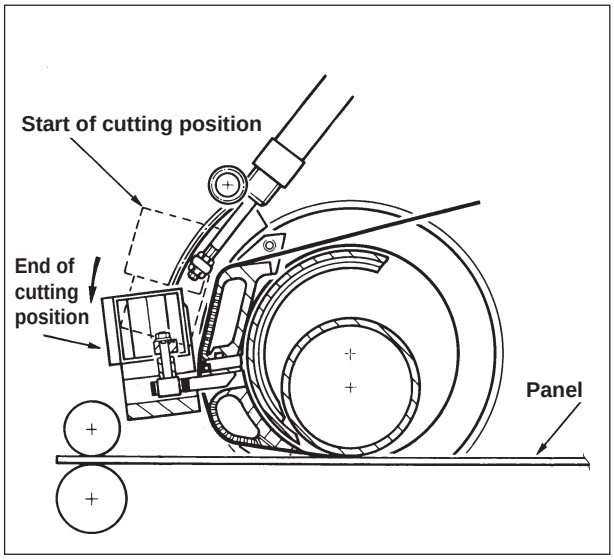
NOTE

The pressure of the upper return cylinders is 6 atm. Its regulator is situated on the left side of the machine rear.

3.3.J ROTATING SECTORS IN "END OF CUTTING" POSITION

The dry film is cut by shears between the start of cutting and the end of cutting positions.

During their movement, the rotating sectors have also drawn with them the two cutting groups, extending the cylinder rods attached to them.

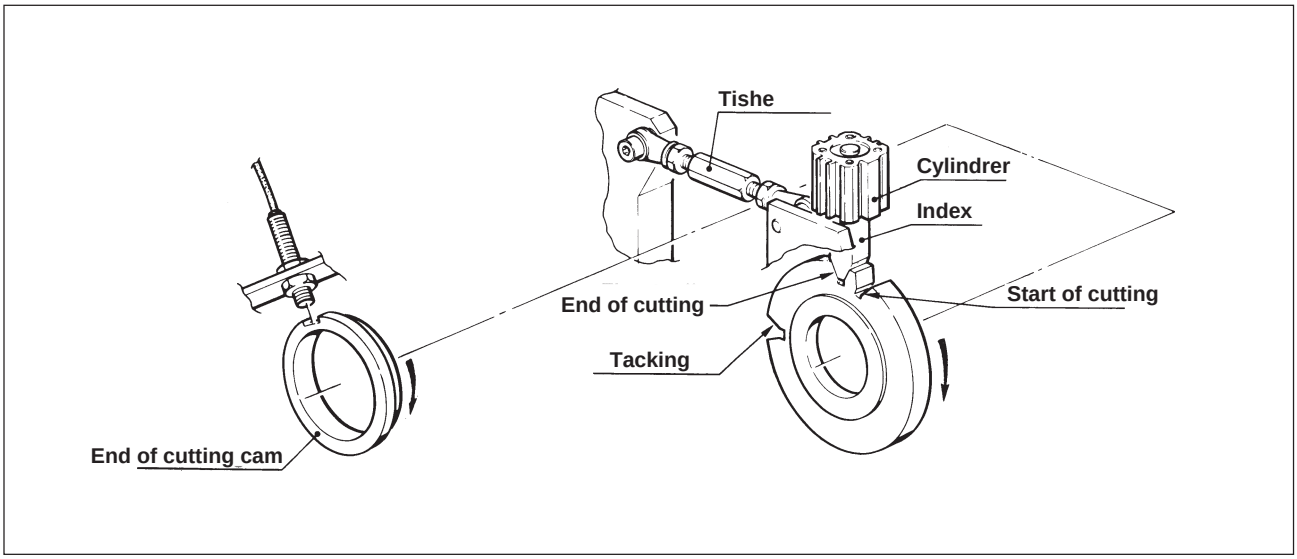


Once sensor FC30, connected to the end of cutting electric cam, has identified the slot, the PLC disengages the electromagnetic clutch (FZ1), thus depriving the rotating sectors of their motion, and activates the electrovalve EV25 to insert the indexes into the slots of the mechanical cams.

NOTE

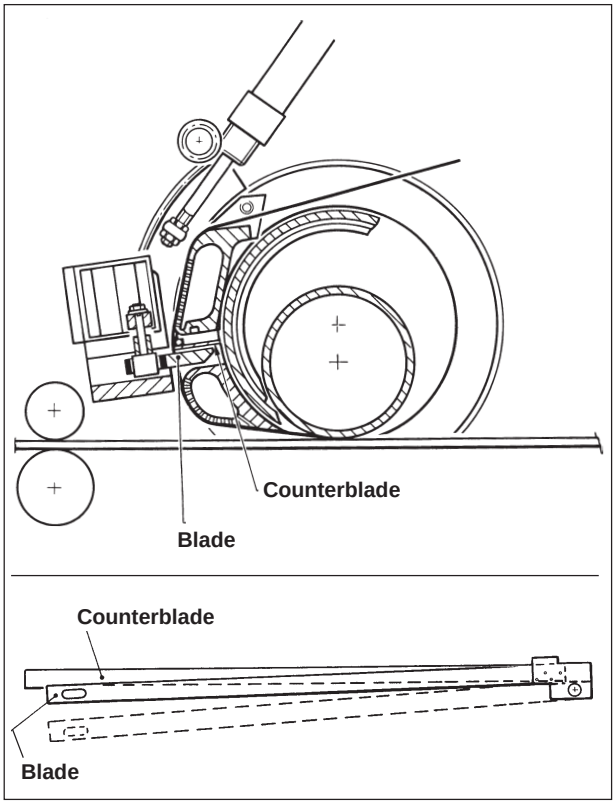
- *Both the end of cutting position and its repeatability, and the start of cutting position are determined by the design of the mechanical cams.*
- *It is therefore advisable never to work on the tishes to vary these positions, otherwise the positions of tacking and "Awaiting-Start of cutting" will also have to be changed.*

Should it become necessary to anticipate or delay the insertion of the indexes in the mechanical cams, the end of cutting electric cam must be anticipated or delayed with regard to its own sensor FC30, remembering to fasten it firmly with its screws after the adjustment.



3.3.K CUTTING GROUPS AT THE END OF CUTTING AND THEIR UNCOUPLING

At the end of the cutting operation, when the rotating sectors remain in their end of cutting position with the indexes inserted, the blades and the counterblades are tightly close along their entire length.



In order to return the cutting groups to their set point position (start of cutting position), the PLC will detach the blades from the counterblades by extending the return cylinders, then it will reposition the blades from oblique to parallel, thus uncoupling them from the rotating sectors and, finally, will command the re-entry of the two return cylinders.

NOTE

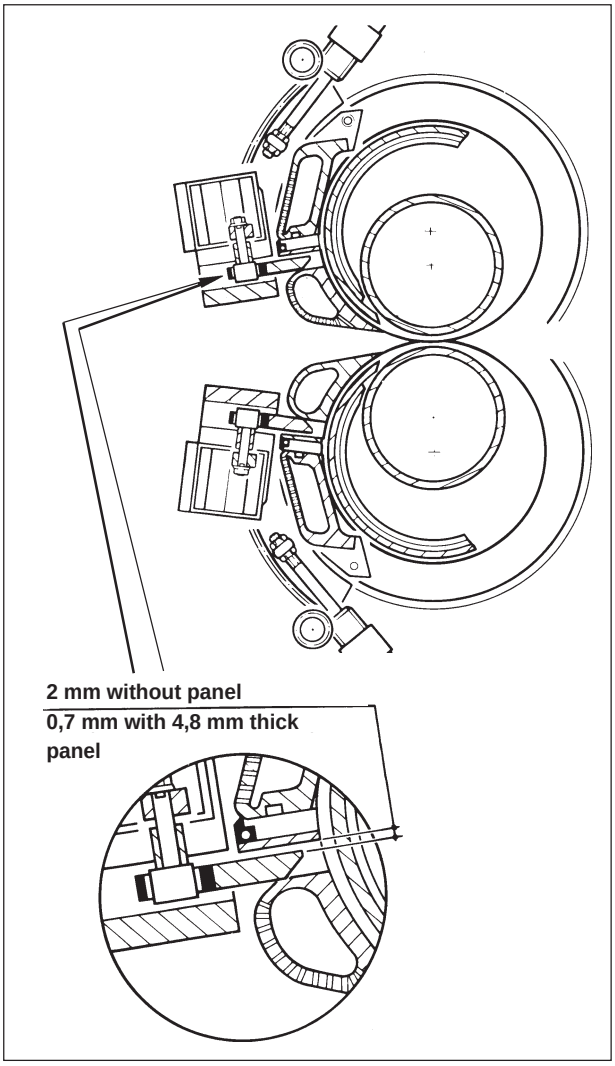
It is necessary that when the return cylinders of the cutting groups are fully extended, there is enough space between the blades and the counterblades to prevent them from rubbing against each other.

This distance will vary according to the thickness of the panels passing between the lamination rolls.

Ideal distances should be:

2.0 mm (upper and lower) with no panels between closed lamination rolls.

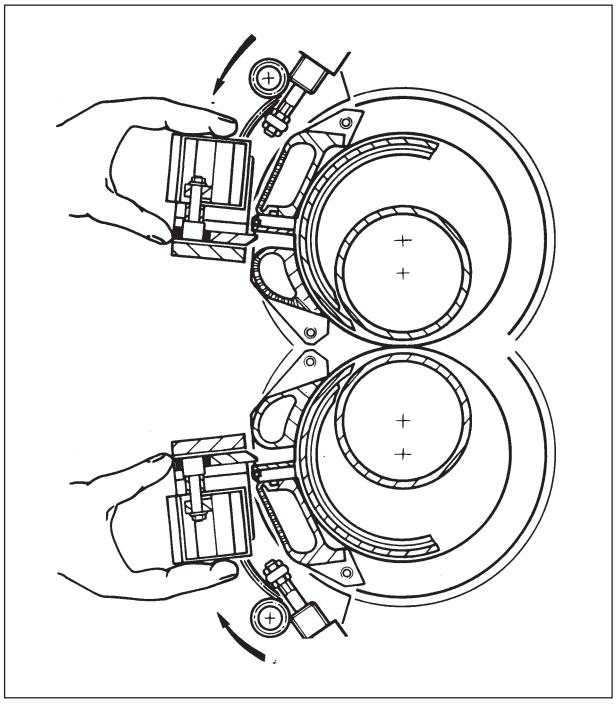
0.7 mm (upper and lower) with three 1.6 mm thick panels, (=4.8 mm) between closed lamination rolls.



If it becomes necessary to verify this distance, proceed as follows:

1. Switch off the machine, take out the removable central unit and turn the rotating groups to the position opposite the one for tacking.
2. Close the lamination rolls, activating by hand the electrovalve EV19, without inserting any panel between the rolls.

3. Turn by hand the rotating sectors to the end of cutting position and activate manually the electrovalve EV25 in order to insert the indexes into the slots of the mechanical cams.
4. Move by hand the two cutting groups (upper and lower) into the space between the main and secondary vacuum sectors.



5. Activate by hand the electrovalve EV21 in order to extend the return cylinders of the cutting groups.
6. Give the command to couple the cutting groups by activating the electrovalve EV20.
7. Using a thickness gauge, check that the distance between the coupling tooth of the movable blade and the counterblade is as indicated in the Table (2 mm).
8. Should it prove necessary to adjust this distance, use the adjustment screws on the cylinder rods.

WARNING

Whenever the adjustment screws of the cylinder rods are used, then the coupling-start of cutting position should also be checked (see chapter "Coupling of the cutting groups").

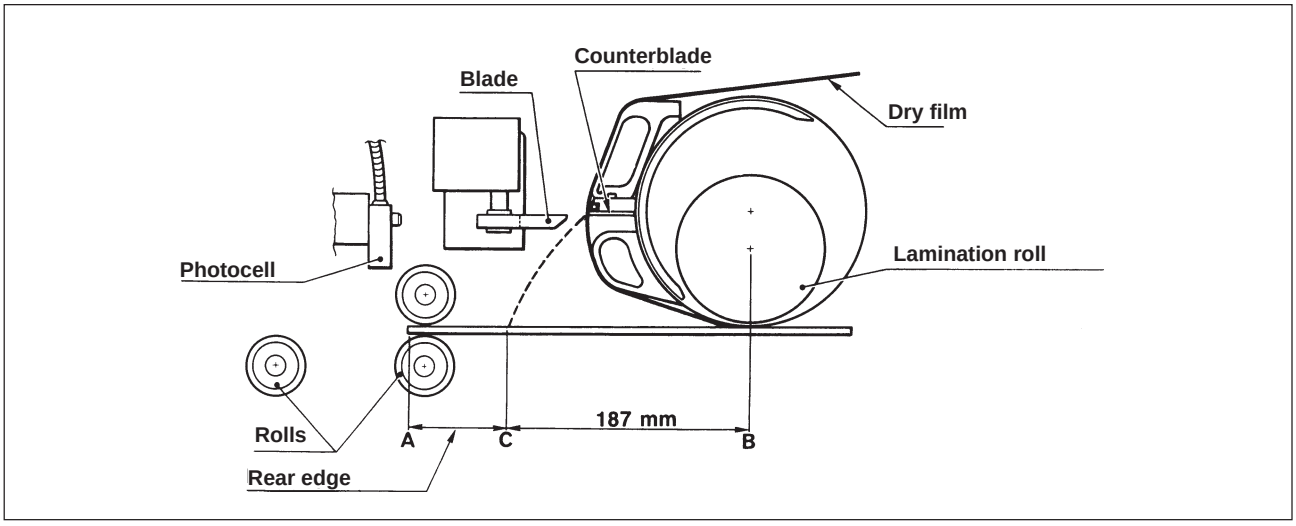
9. Detach the cutting groups from the rotating sectors by unenabling the electrovalve EV20, and bring them back to their set point position by unenabling EV21.
10. Remove the indexes and open the rolls.
11. Insert three 1.6 mm thick panels between the rolls and repeat the entire procedure starting from point 2., and check that the distance between the coupling tooth of the blades and the counterblades is correct, i.e. 0.7 mm, for both units (upper and lower).

Care should be taken to operate the return cylinders of the cutting groups at the correct pressure.
Read the note in the chapter "Coupling of the cutting groups".

3.3.L CUTTING ON THE FLY-REAR EDGE-REAR EDGE PHOTOCELL

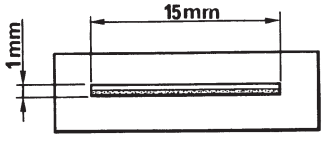
As already illustrated, the cutting system employed is “shearing”, i.e. it consists of a movable blade and a counterblade.
The entire assembly moves at the same speed as the dry film, so that the cut can be made on the fly, i.e. without interrupting the lamination process.

In order to cut the dry film, the movable blade and the counterblade must get in touch; this is achieved by coupling the cutting groups to the rotating sectors (see preceding chapter).
The rear edge is determined by the difference in length between distances A-B and C-B.



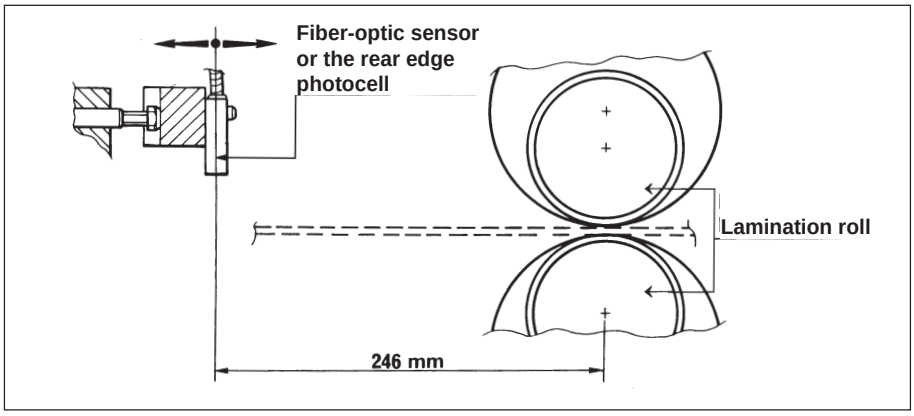
Since distance C-B is 187 mm, it follows that the minimum length of laminable film is 187 mm.
The command to execute a cut is given by the PLC after the rear edge detecting photocell (FC47) no longer perceives the panel.
To prevent a hole on the panel from being mistaken for the end of the panel, a custom-made fiber-optic photocell is used, which is able to overlook holes of up to 10 mm diameter, offering at the same time a precision of 0.1 mm.

The rear edge photocell has a precise position on the input roller. Its distance from the lamination line is approximately 246 mm.



Fiber-optic sensor of the rear edge photocell

Nevertheless, when calibrating the rear edges, it can be moved either forward or backward from its theoretical position, by means of a regulating system.

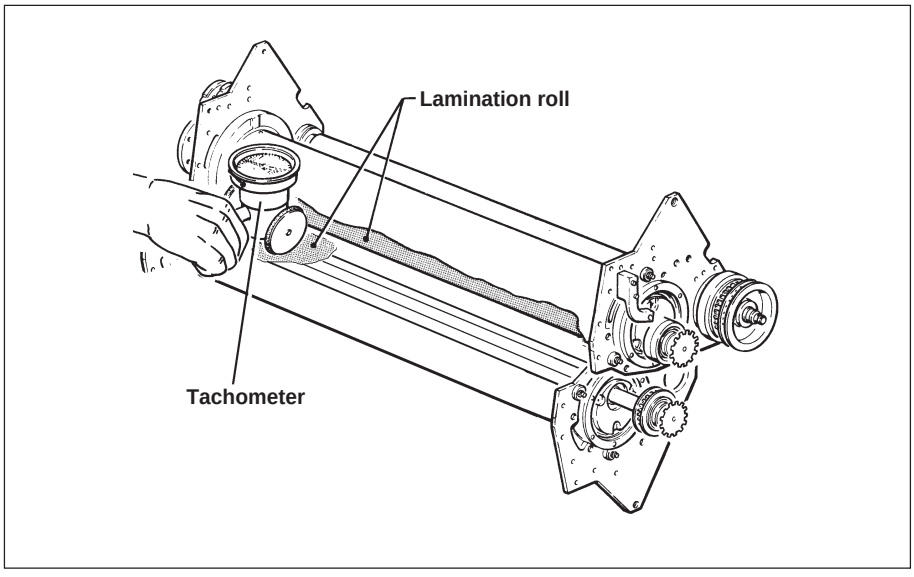


Before starting calibrating the rear edge, it is important to carry out the following operations:

- Calibrate the conveying speed and lamination speed while the machine is performing a lamination.
- Calibrate the hysteresis sensitivity of the fiber-optic photocell.
- Align the upper rear edge with the lower one.

3.3.M CALIBRATION OF THE ROLL SPEED

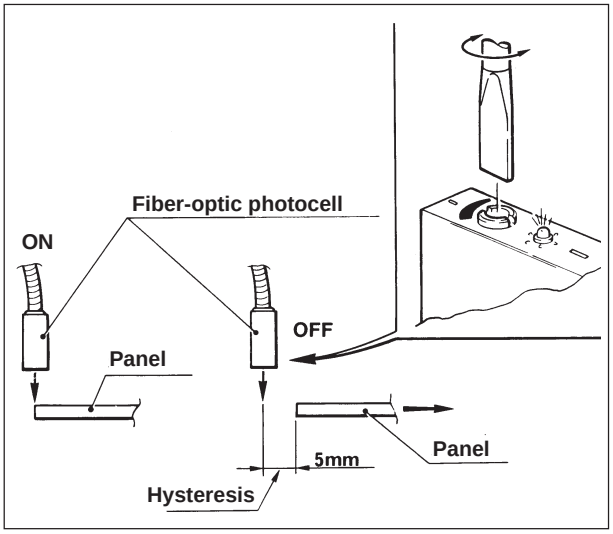
In order to calibrate the conveying and lamination speed, it is necessary to set the speed of 5 m/min on the control panel, and measure the true speed with a tachometer attached to the lamination rolls.
If the measured speed differs from the set speed, make the necessary adjustments by means of the trimmer on the driver (AZ1) installed inside the control panel, until the precise set speed is obtained.



3.3.N CALIBRATION OF THE REAR EDGE PHOTOCELL

In order to calibrate the sensitivity and hysteresis of the fiber-optic photocell (FC47), first take off the removable thin panel support unit and then, with the rolls still, insert a panel until it makes contact with the insertion roll. A red led will light up on the rear edge photocell, which is mounted on the base of the mirror photocell. When the panel is removed, the led will go out.

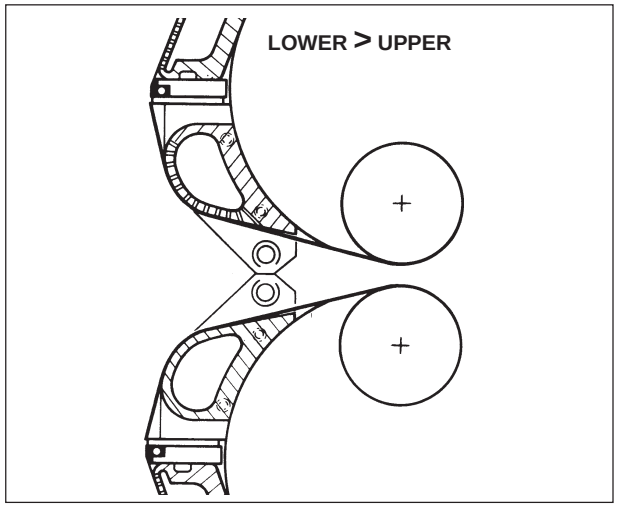
The calibration of the sensitivity of the photocell is obtained by means of the adjustment screw and should be done so that the led lights up as soon as the front edge of the panel is perceived by the fiber-optic photocell, but it goes out when the panel is moved back 5 mm from its inspection line.



Normally this situation is achieved by increasing the sensitivity value of the photocell to its maximum until the red led lights up without any panel, and then slowly reducing the sensitivity until the led goes out.

3.3.O ALIGNMENT OF THE REAR EDGE ON BOTH FACES (UPPER AND LOWER)

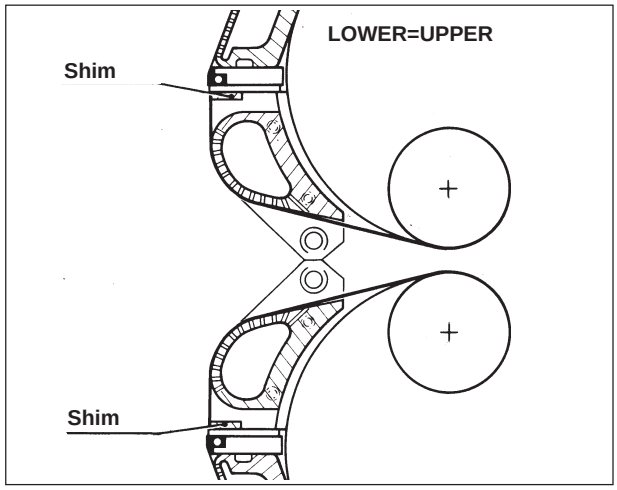
As described before, the distance between the “Awaiting-Start of cutting” point and the lamination point is, in theory, 187 mm.
Nevertheless, possible changes in the dimensions of the secondary vacuum sectors and the assembly allowances might give rise to differences in the length of the dry film between one machine and another, or between the upper and lower units of the same machine.



NOTE

Before proceeding with the calibration of the rear edge, the upper and lower edges must be evened up.

Since the real differences will always be less than 1 mm, in order to make both edges equal in measurement, it will be sufficient to shim the secondary vacuum sector corresponding to the shorter edge, so as to increase the film length on that side.



3.3.P CALCULATION OF THE REAR EDGE-CORRECTION OF PARAMETERS AND CYCLE TIMES

Between the instant when the the rear edge photocell is released and the point at which the rotating sectors synchronize with the speed of the moving film and perform the cut, the PLC determines a delay interval, calculated by taking into account the lamination speed, the rear edge required and any delay in mechanical response.

The formula for determining the delay is as follows:

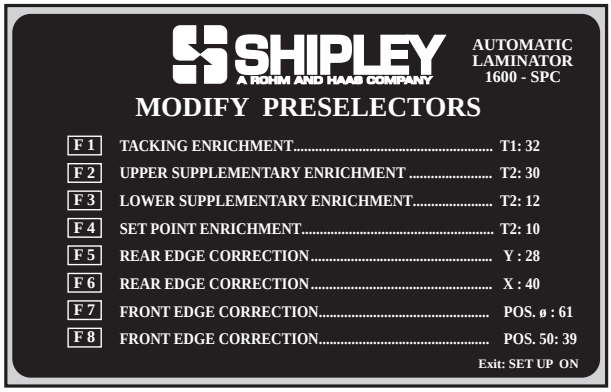
$$T = \frac{(50 - edge) \cdot X + (5 - Speed) \cdot Y}{Speed \cdot 1000}$$

where:

T	=	Resulting delay time (sec.)
50	=	Maximum rear edge (mm)
Edge	=	Preset rear edge
X	=	Multiplication factor
5	=	Maximum lamination speed that can be set (m/min)
Speed	=	Lamination speed as read on the speedometer dynamo (or as set)
Y	=	Multiplication factor for the delays due to mechanical responses.

The delay time equals 0 when lamination speed is 5 m/min with a rear edge of 50 mm.
It will be rather long, however, when laminating at a very low speed and with a rear edge of 0 mm.
The two multiplication factors, “X” and “Y” may assume different values from one machine to another, or even vary in the course of time for the same machine, due to even very slight differences in the operating temperatures and in the response times of electromagnetic clutches, of mechanical parts in motion and of pneumatic parts.

The adjustments with reference to “X” and “Y” are displayed on the page “**Modify Preselectors**”.
The values of “X” and “Y” have been broken out into two parts: one is fixed, stored in the program memory, the other, which is variable, is added to the fixed one and set via the above mentioned references.
To the fixed value of “X” can be added a quantity that may vary between 00 and 99.


SHIPLEY
A ROHM AND HAAS COMPANY
AUTOMATIC
LAMINATOR
1600 - SPC
MODIFY PRESELECTORS
F 1 TACKING ENRICHMENT..... T1: 32
F 2 UPPER SUPPLEMENTARY ENRICHMENT T2: 30
F 3 LOWER SUPPLEMENTARY ENRICHMENT..... T2: 12
F 4 SET POINT ENRICHMENT..... T2: 10
F 5 REAR EDGE CORRECTION..... Y : 28
F 6 REAR EDGE CORRECTION..... X : 40
F 7 FRONT EDGE CORRECTION..... POS. ø : 61
F 8 FRONT EDGE CORRECTION..... POS. 50: 39
Exit: SET UP ON

e.g.: preselector set to 13;
X = fixed part stored in the PLC memory + 13.

To the fixed value of “Y” can be added a quantity that may vary between 00 and 99.

e.g.: preselector set to 52;
Y = fixed part stored in the PLC memory + 52.

During the final inspection of the laminator these parameters are identified and stored in the memory of the PLC.

However, should it be necessary to modify them, proceed as follows:

1. Prepare the machine for lamination with the dry film and set it with the normal values of temperature and pressure.

2. Set a speed of 5 m/min. and rear edge of 50 mm.

3. Laminate a panel of minimum length 300 mm and measure the rear edge obtained.

4. If the measured edge is greater than 50 mm, bring the fiber-optic photocell of the rear edge (FC47) closer to the lamination rolls as much as the edge exceeds 50 mm.

5. Conversely, if the measured edge is less than 50 mm, take the photocell away from the rolls as much as the edge falls short of 50 mm.

6. Verify the edge again, laminating the panel until the exact position of the fiber-optic photocell is found.

7. Keeping a speed of 5 m/min., set the rear edge to 0 mm and laminate the panel, then measure the actual edge obtained.

8. If the dry film is shorter than the panel, the value of “X” must be increased; if, on the contrary, the film is longer than the panel, the value of “X” must be decreased.

9. Repeat the procedure until the optimum value of “X” is found.

10. Now set the rear edge to 50 mm and lamination speed to 1 m/min.

11. Laminate the panel and measure the real edge obtained.

12. If it is less than 50 mm, the value of “Y” must be decreased; if it is greater than 50 mm, the value of “Y” must be increased.

13. Repeat the procedure until the optimum value of “Y” is found.

WARNING

The value of the rear edge, due to the specific design of this machine, may be subject to some slight shift from the set value, depending upon the thickness of the laminated panel. Therefore, discrepancies may be found between the set values and the real ones.
We suggest modifying the set value according to such discrepancies, in order to obtain the precise value required.

The laminator, however, offers excellent repeatability over the long period, which is, without doubt, the most important characteristic of the lamination process.

3.3.Q CYCLE TIMES

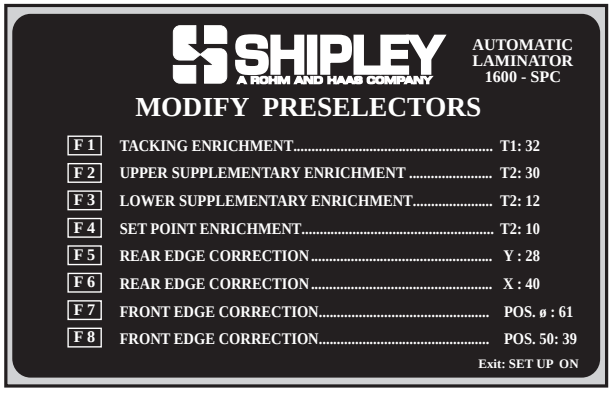
During the lamination process, the PLC manages several timing intervals dedicated to the opening and closing of the electromagnetic clutches of the enrichment rolls (upper and lower).

T1 = **Main enrichment time.**
This is the enrichment time for the dry film (upper and lower) during the rotation of the sectors from the end of cutting position to the tacking position.
Fixed value stored in memory = 0.5 sec.

T2 = **Upper supplementary enrichment time.**
This is the enrichment time for the dry film between the end of cutting and the opening of the rolls.
Fixed value stored in memory = 0.

T3 = **Lower supplementary enrichment time.**
As above.
It is equal to T2 + set value for T3.

T4 = **Set point enrichment time.**
This is the enrichment time for the dry film between the start of cutting and the end of cutting positions (the operation is carried out only once after loading the dry film and closing the machine).


SHIPLEY
A ROHM AND HAAS COMPANY
AUTOMATIC
LAMINATOR
1600 - SPC
MODIFY PRESELECTORS
F 1 TACKING ENRICHMENT..... T1: 32
F 2 UPPER SUPPLEMENTARY ENRICHMENT T2: 30
F 3 LOWER SUPPLEMENTARY ENRICHMENT..... T2: 12
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F 5 REAR EDGE CORRECTION..... Y : 28
F 6 REAR EDGE CORRECTION..... X : 40
F 7 FRONT EDGE CORRECTION..... POS. ø : 61
F 8 FRONT EDGE CORRECTION..... POS. 50: 39
Exit: SET UP ON

The adjustment references (“T1”÷”T4") are visualized on the page “Modify preselectors”.

WARNING

Once the parameters have been modified by means of the references (“T1”÷”T4"), it is necessary to confirm them by pressing the SET UP ON button.
The PLC can thus read and store the new values (“T1”÷”T4").

3.3.R EDGES ON PANELS OF MINIMUM LENGTH

As already described in the chapter "FRONT EDGE", the shortest processible panel measures 210 mm. Since the distance between the lamination line and the rear edge photocell is approximately 246 mm, when laminating a panel shorter than 246 mm, the value set for the rear edge should take into account the size of the front edge, the length of the panel and the actual rear edge required.

Knowing that the minimum length of dry film that can be laminated is 187 mm, in order to obtain front and rear edges of 50 mm the panel must have a minimum length of 287 mm.

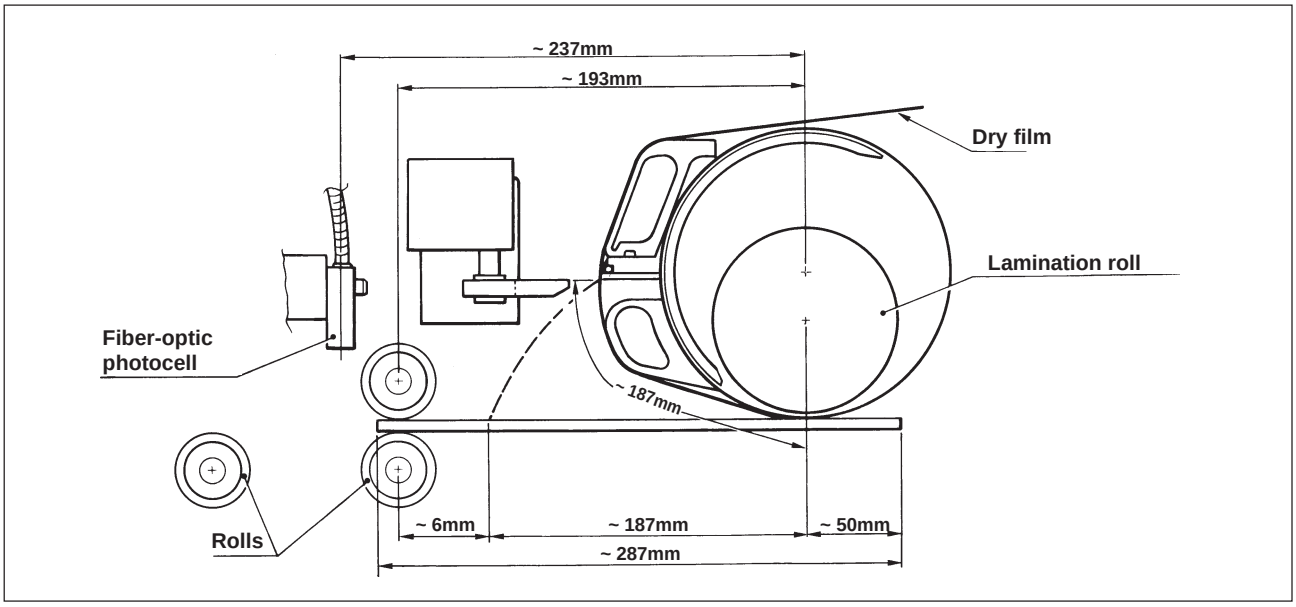
For panels with a length between 287 and 210 mm, the value of the rear edge modifies as follows:

If "**B**" is the maximum rear edge possible for panels with length below 287 mm, we have:

Length of panel - 187 mm - front edge = B

If **B** (greater than or equal to) 50, the rear edge will correspond to the value actually programmed on the control panel.

If **B** < (less than) 50, **B** will correspond to the preset value of 50 mm.



Example: • Panel length 227 mm
• Front edge 10 mm

What figure should be set in order to have a rear edge of 10 mm?

If we apply the above-mentioned relation, we have:

227 mm - 187 mm - 10 mm = 30 mm (=B)

As **B** < 50, we have that the maximum real edge corresponding to the preset value of 50 mm is in fact 30 mm, hence:

Preset edge	Real edge
50	30
40	20
30	10
20	0
10	+ 10 (dry film protruding from the panel)

therefore, in order to obtain a rear edge of 10 mm, a value of 30 mm must be set on the keyboard.

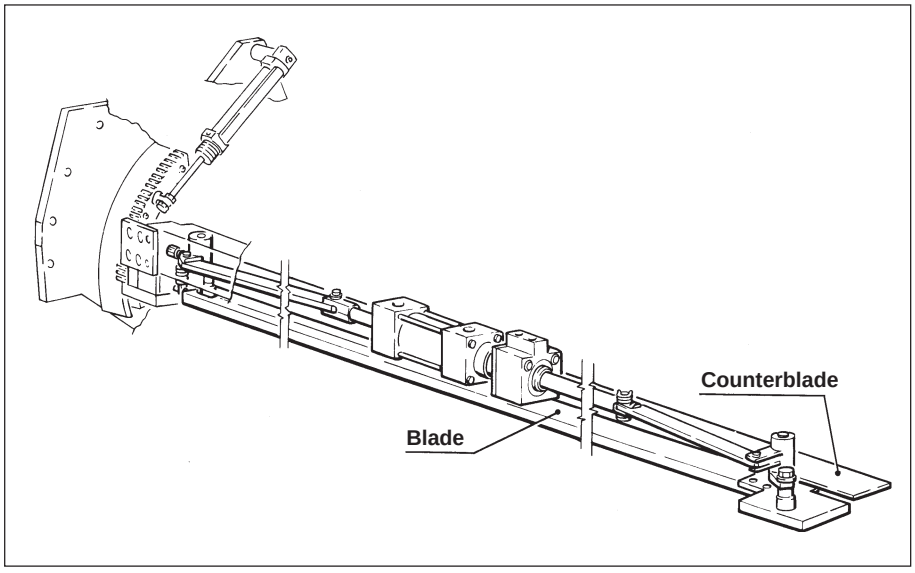
As already explained in the chapter "Front edge", it is not possible to set any front edge value greater than:

Panel length – 200 mm

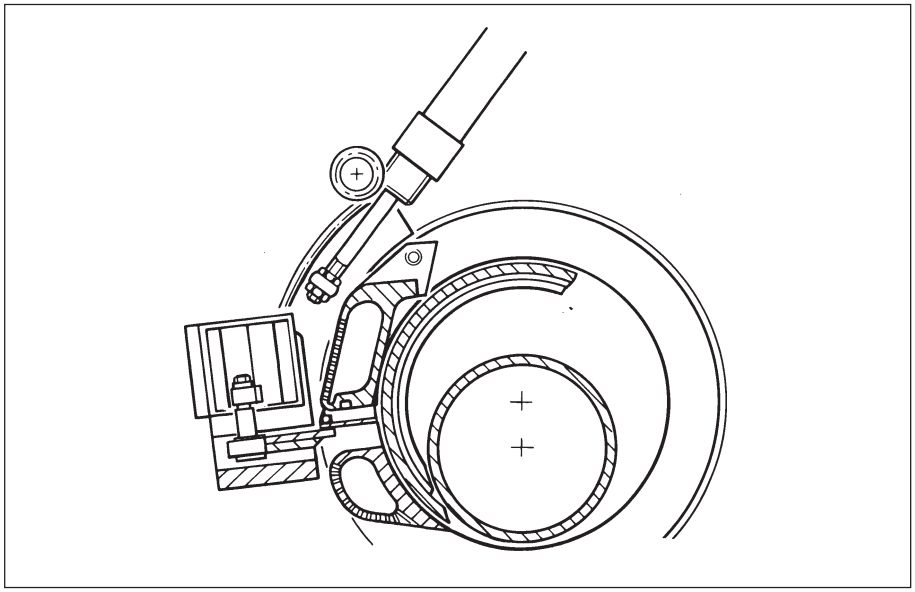
Read carefully the explanations given in the chapter.

3.3.S CUTTING GROUPS

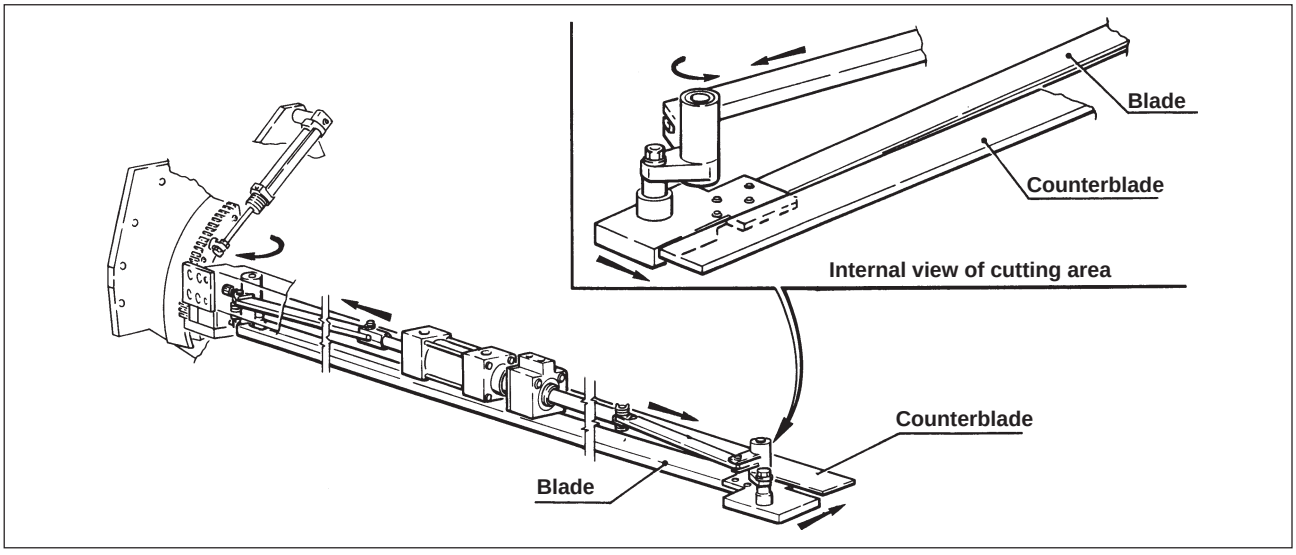
The film cutting system is, as already mentioned, “ shearing”.
It consists of a movable blade and a fixed counterblade. Both these tools are made of hard steel.

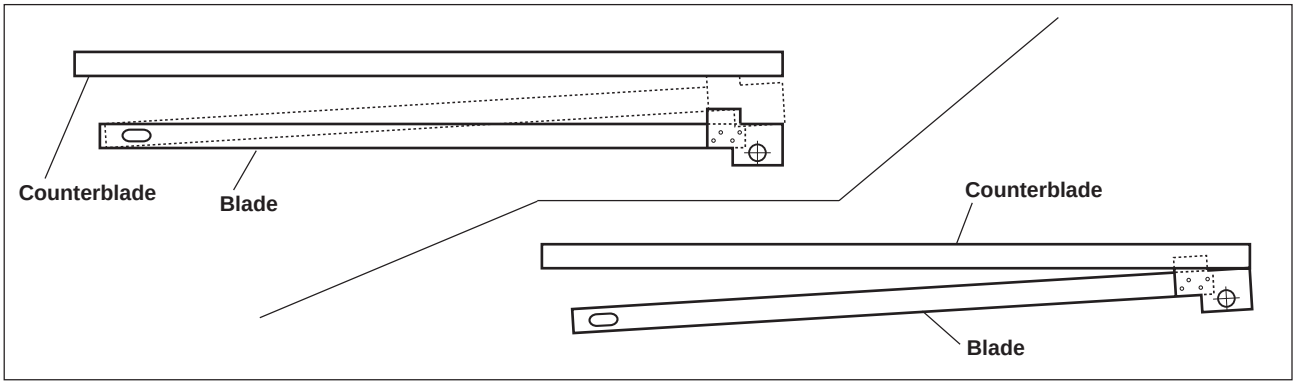


In order to couple the movable blade and the counterblade, the first must be placed in an oblique position compared to the latter, to enable its coupling tooth to be inserted in the cavity situated between the main and the secondary vacuum sectors.



The movable blade is driven by two pneumatic cylinders connected in series. The first, which has a short stroke, positions the blade obliquely, while the second, with a double stem and a long stroke, moves the blade from both sides in order to cut the film.





Both the return cylinder of the group and the spring, placed at the end opposite the one with the coupling tooth, ensure that the two blades remain in contact.

Inside the group there is a sensor, FC26 for above, FC 27 for below, which reads the positions in which coupling or uncoupling has taken place.

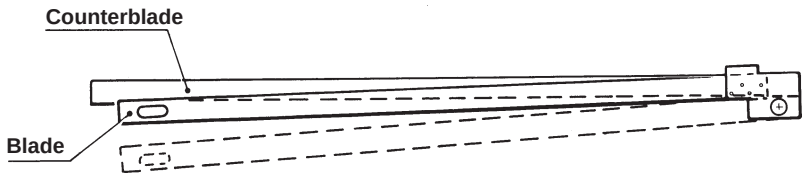
During the cutting operation the movable blade is moved symmetrically on both its sides, due to the right and left leverage of the cutting group.

WARNING

It is very important that the cutting speed should not be too low, in order to ensure that the cut takes place on the fly, but at the same time it should not be too fast, to prevent the movable blade from bouncing on the counterblade, which would cause an imperfect cut.

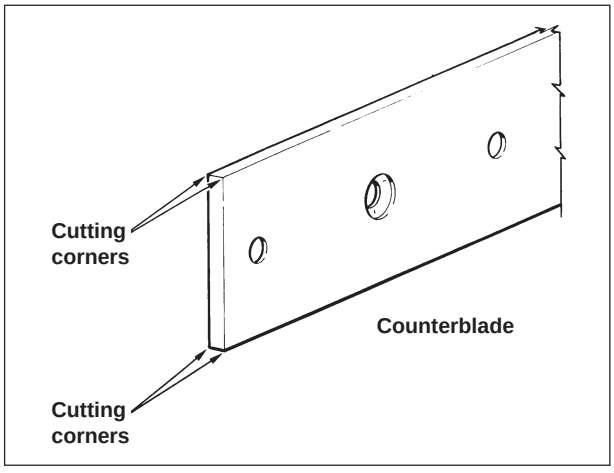
NOTE

Due to the effect of gravity, the return springs of the upper and lower blades have different calibrations.

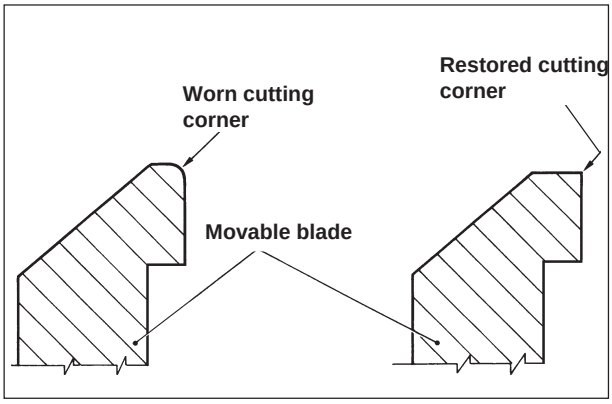


The flow regulators of the double rod cylinders make it possible to adjust the speed, which should be kept between 0.6 ÷ 1 sec.

The cutting tools are manufactured so as to survive countless operating cycles before requiring maintenance.
However, when it becomes necessary to restore optimum cutting conditions, the counterblade will have to be rotated on its axis (or turned round) so as to use, one by one, all four of its cutting corners.



Once all four cutting corners of the counterblade and the corner of the movable blade are worn out, they will have to be restored to 90°.



The grinding process for these tools is extremely delicate, and must be carried out with the utmost precision and skill, taking care to absolutely avoid heating the steel they are made of.

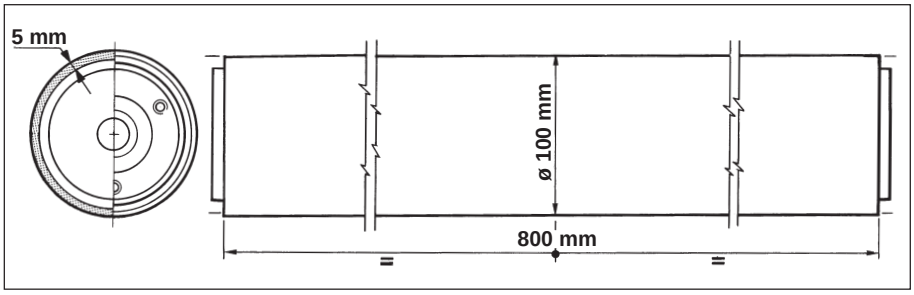
WARNING

Do not rub any abrasive objects, such as files, glass-paper etc. on the cutting corners of the tools.

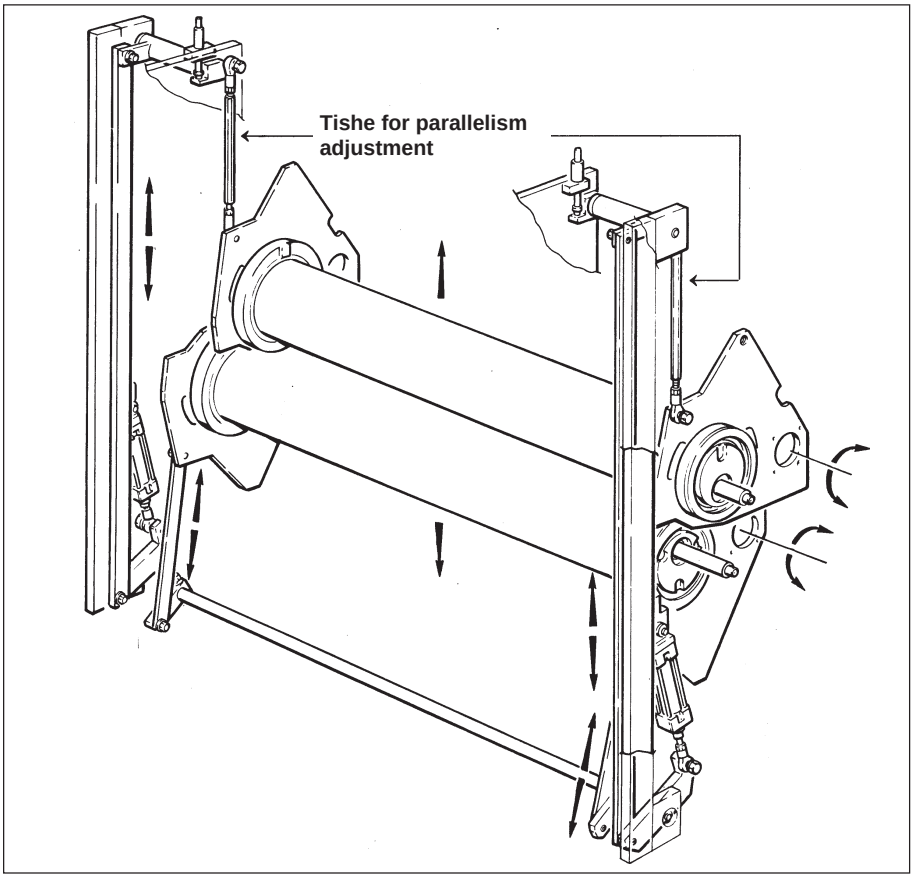
The blades will cut quite efficiently if cleaned simply with a cloth dampened with alcohol.

3.3.T LAMINATION ROLLS, PRESSURE, HEATING AND THERMAL ALARM MESSAGES.

The Laminator 1600-SPC laminates the dry film on the panel by means of a pair of hot rolls called “lamination rolls”.
The rolls diameter, length and hardness are indicated in the chapter TECHNICAL FEATURES. Their colour is black.

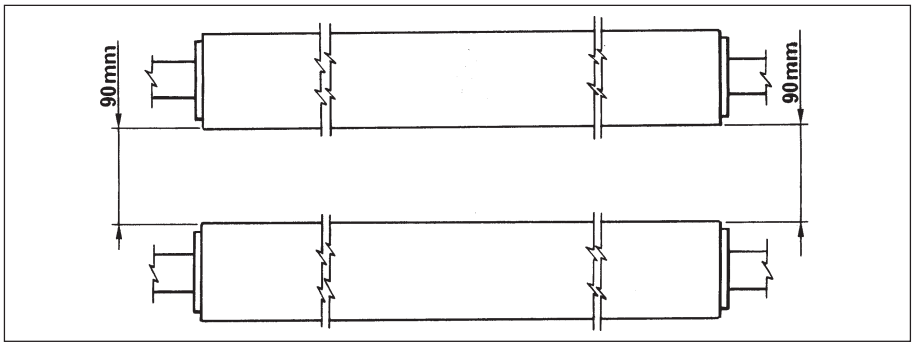


The material of their core guarantees an even distribution of pressure on the panel.
Both upper and lower rolls (as well as the vacuum sectors etc.) move symmetrically as regards the lamination plane.
The movement is obtained by means of two pneumatic cylinders, synchronized by a mechanical cam shaft and a system of levers.

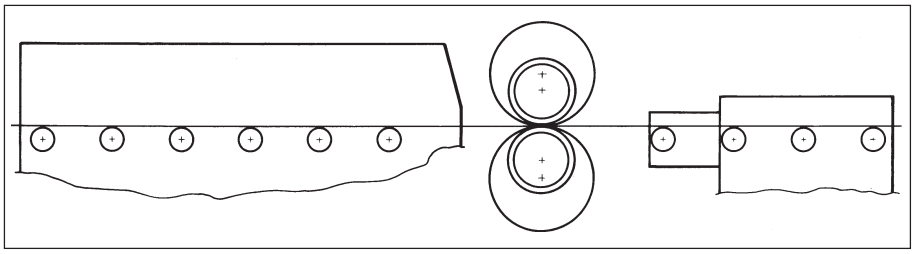


The parallelism of the rolls in comparison with the theoretical lamination line can be corrected by means of the upper tishes, left and right, mounted on the control levers of the rolls and vacuum sectors holder shoulders.

The distance between the open rolls must be 90 mm.

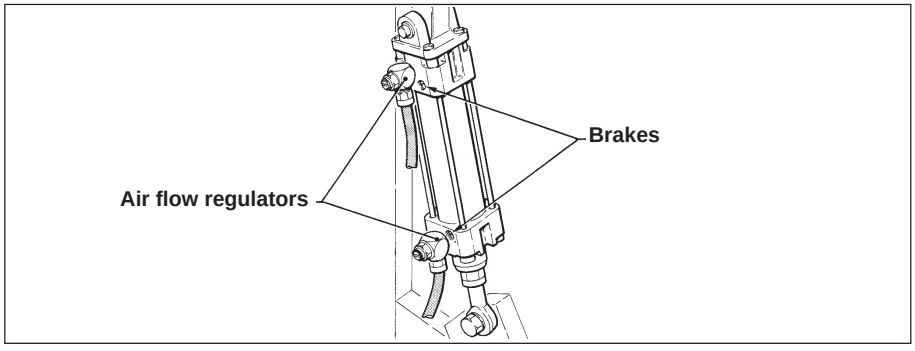


If necessary, adjust this distance by means of the tishes.
First of all, make sure that the closure line of the rolls coincides with the line of the input and output rollers plane.



Then adjust first the height of the lower roll, then the distance between the rolls when they are open.
The opening and closing movement of the shoulders (and therefore of the rolls) should be as rapid as possible. However, while a fast opening does not cause any problem, a too fast closure could lead to damages to the rubber if the roll happened to close on the sharp edge of a panel.
The opening and closing speed must be optimized by adjusting evenly and simultaneously the left and right air flow regulators of the actuator cylinders and their pneumatic brakes.

The recommended closure time is 0.8÷1 sec.

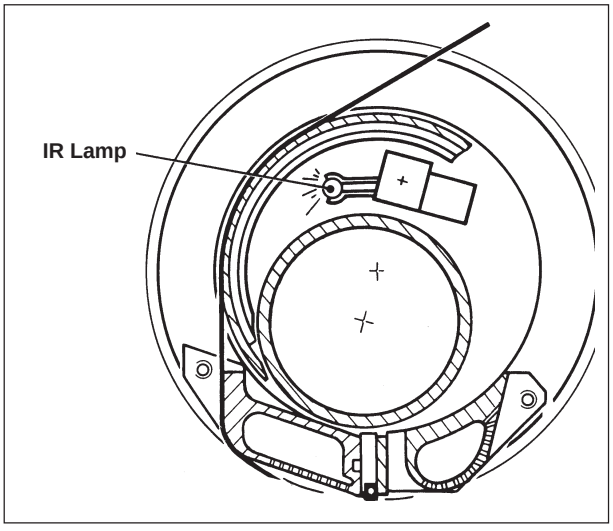


The rolls are heated by 210W/220V short-wave IR lamps, activated by solid-state relays.

The strong heating power of the lamps, together with the dark colour of the rolls, leads to an extremely rapid response of the system to the command to increase the rolls temperature.

The average time required to pass from room temperature to 110°C is approximately 7 minutes.

The IR lamps are housed in the semi-cylindrical aluminium calotte which also serves as a guard for the rolls.

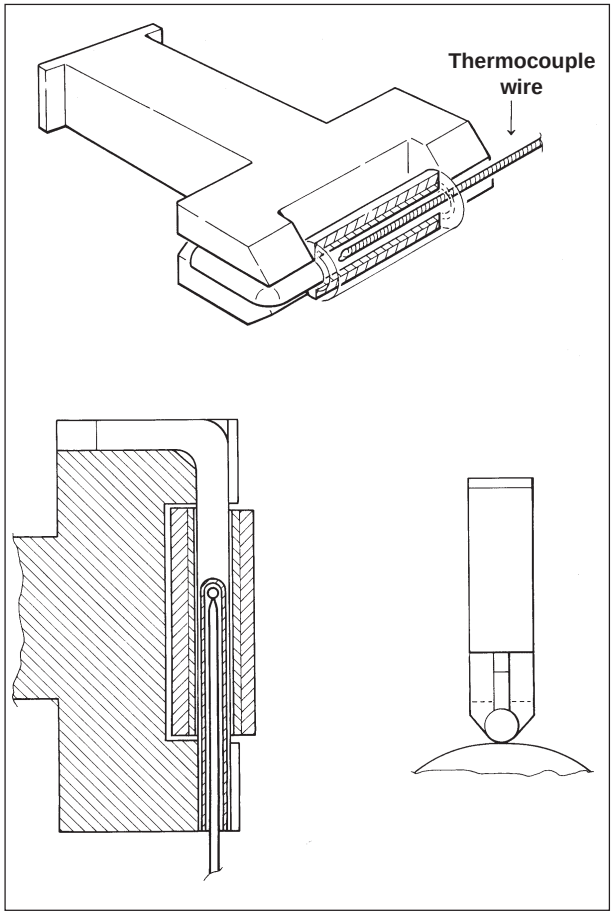


NOTE

The lamps are mounted so that they can slide lenghtwise along one side. This elongation is caused by the expansion due to the high temperature.

The IR lamps have a lifetime of several thousand hours, operating at full power and continually.
As they usually work intermittently, their lifetime can therefore be considered to be even longer.

The temperature of the rolls is measured by a “rotating type” thermocouple sensor.



The design of the temperature transducer prevents any friction between the roll and the probe, because its copper roller rotates on the lamination roll.

The heat inertia of the transducer is very low, so any fall in the roll temperature is immediately perceived and signalled to the thermoregulator.

The low heat inertias of the sensor and of the IR lamps ensure that the rolls temperature fluctuates very little from the set value.

This guarantees more constant temperature values of the laminated panels over the long period.

WARNING

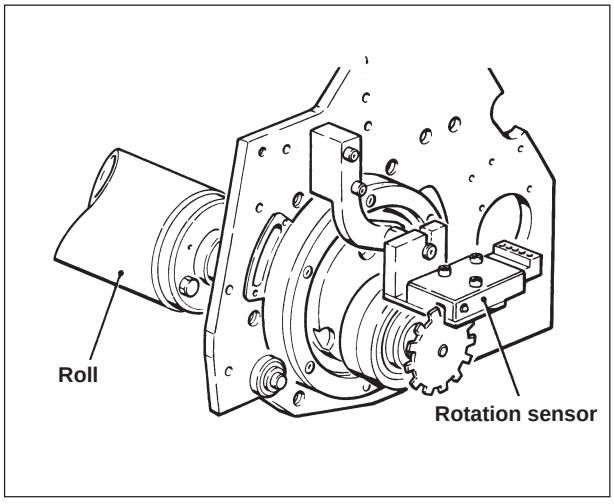
- ***Due to the position where it is mounted, the transducer reads the temperature of the roll after it has yielded some heat to the panels, therefore it is inevitable that the thermoregulator display shows a slightly lower temperature than the set value.***
- ***The maximum temperature allowed on the rolls is 130°C.***
- ***Since the heating element is outside the rolls, it is vital that the rolls continue to rotate while the lamps are on, to prevent the rubber rolls from burning.***

To the right side of each roll are keyed a toothed disk and a sensor (CRR1/CRR2) which perceives the rotation of the roll.

NOTA

If a roll stops rotating for any reason, its rotation sensor will interrupt the heating.

The thermoregulators which command the heating of the rolls are controlled by their own microprocessors.

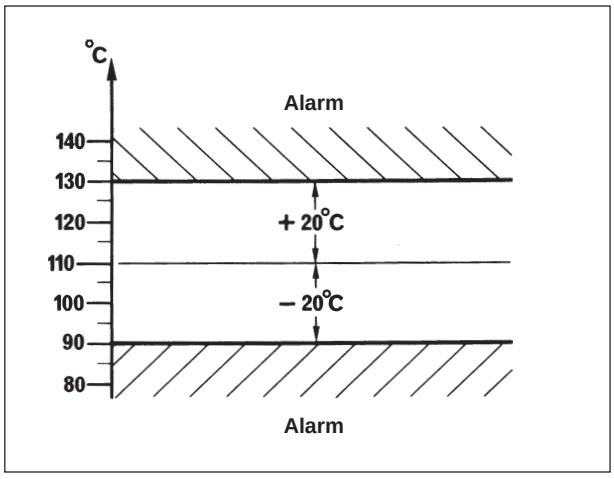


The thermoregulators can be programmed for different functions.

The alarm is expressed in °C, and represents the value below or above which the machine will not accept panels for lamination.

e.g.: Set value = 110°C / alarm 20°C

The alarm will be activated from 0÷89°C and from 131°C upwards.



The alarm message displayed is:

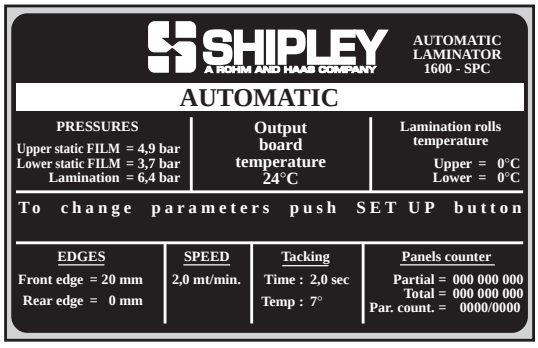
- **"Lamination rolls temperature out of range"** (code 131)

WARNING

It is important for the temperature transducer to remain always in contact with the rolls, and, at the same time, to have the possibility to draw back, too.
A faulty contact between the thermocouple and the rolls will cause a dangerous rise in the rolls temperature, to the extent of burning the rubber.

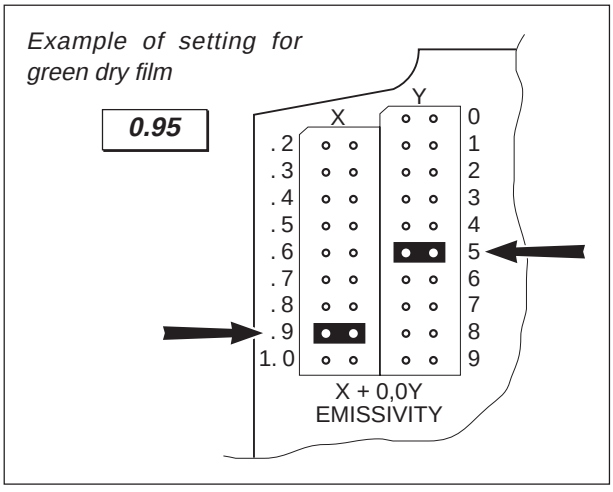
3.3.U DISPLAY OF THE OUTPUT PANEL TEMPERATURE

The temperature of the panel after lamination is shown on the machine display.



This parameter is an important coordinate to verify whether the lamination is proceeding within the correct limits.

The IR temperature sensor (no-touch) is housed on the output roller of the machine.
Since the IR sensor is influenced by colours, the amplifier connected to the IR sensor contains selectors which must be positioned according to the different dry film colours (green, red, etc.)

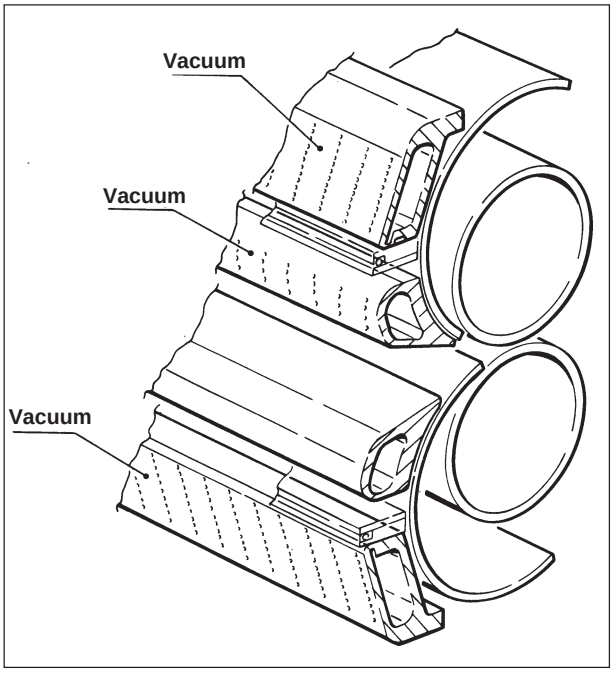


Generally speaking, the temperature recommended for a panel laminated with a Shipley dry film is 45÷55°C.

In order to increase the temperature of the output panel, it is possible either to increase the temperature of the rolls, reduce the speed or preheat the panel before lamination.

3.3.V VACUUM CUTOFF VALVES

Between the vacuum pump and the vacuum sectors there is a vacuum distributor with three secondary air ducts, each of them containing a gate valve, moved by a mini pneumatic cylinder controlled by electrovalves (EV26-EV27-EV35).



The three secondary air ducts create vacuum in the upper main vacuum sector, the upper secondary vacuum sector and the lower main vacuum sector, respectively.

Vacuum in the upper secondary sector is used to hold the extreme edge of the cut film away from the panel until it has been laminated.
Depending on the point reached in the cycle, the valves connect the vacuum sectors to the vacuum pump.

⇨ NOTE

- *Vacuum is present in the main vacuum sectors from the start of cutting phase through tacking.*
- *Vacuum is absent in all the sectors during lamination.*

Vacuum is present in the upper secondary vacuum sectors from the start of cutting phase until the rolls open again after lamination.

When all the three vacuum air ducts are closed by their respective gate valves, an air discharge vent opens automatically to prevent the vacuum pump from overloading.

The air discharge vent is itself noisy, therefore it has been equipped with a silencer.

As regards the maintenance frequency for the silencer and the main filter of the vacuum pump, refer to periodic maintenance table in the section “Maintenance”.

3.3.W DYNAMIC TENSION ROLLS

The dynamic tension rolls of the film (one upper, one lower) are used for recovering any slack in the film that may develop during the lamination cycle, as well as for keeping the film taut, thus preventing the formation of diagonal wrinkles during lamination.

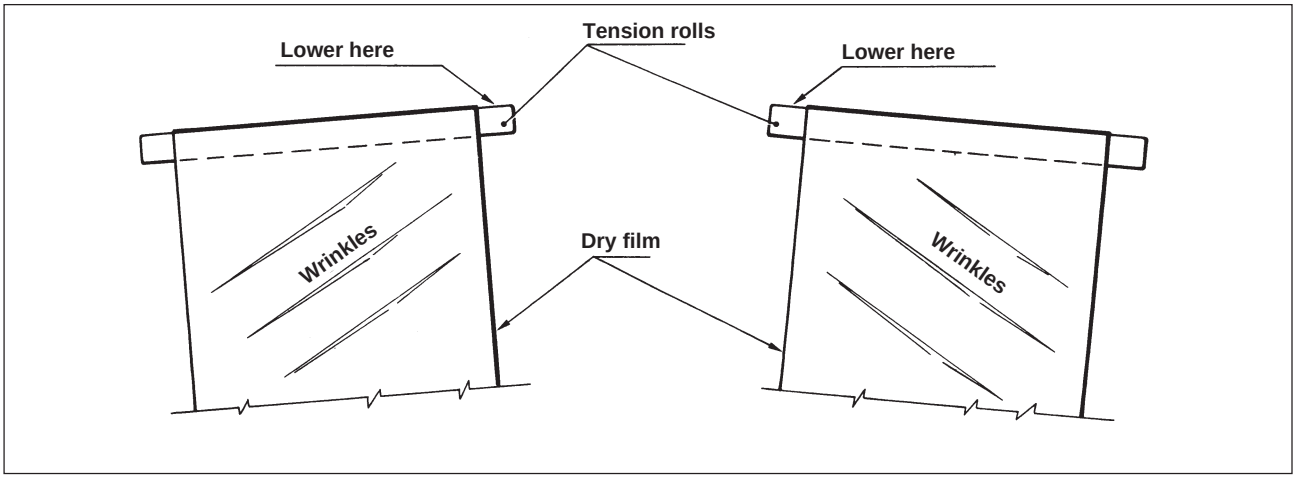
The tension rolls extend following the SET UP command, but they retract when the dry film rolls are disengaged, thus facilitating the removal of the polyethylene take-up rolls.

When the machine stands in the panel awaiting position, the extended tension rolls hold the dry film up above the rotating sectors.
When the panel for lamination is centered by the lateral centering unit, the tension rolls retract and the rotating sectors turn to the tacking position.
Once the tacking, the fast return of the sectors to the "AWAITING-START OF CUTTING" position and the closing of the rolls on the panel have taken place, the two tension rolls extend, recovering all slacks in the dry film and keeping it stretched.
The tension rolls remain extended during the entire lamination phase up to an instant before the command to cut arrives.

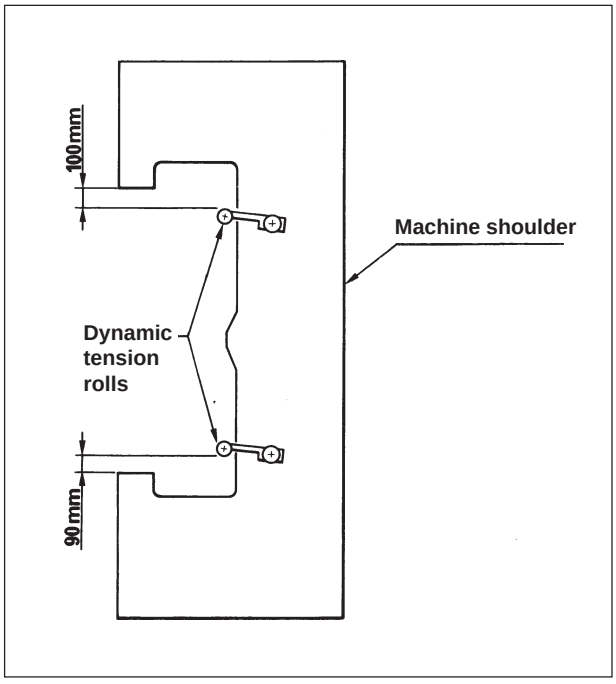
At this point they are retracted, relieving tension on the film and preventing it from being subject to the "elastic effect" when it is cut.

WARNING

- **It is important, therefore, that the speed of the tension rolls in either direction should not be too low, but that it should take into account the information given hereinafter.**
- ***It is equally important that the tension rolls should be positioned so as to smooth out all diagonal wrinkles in the film (see following diagram).***



The distance at which the tension rolls should be adjusted in their extended position is as follows:



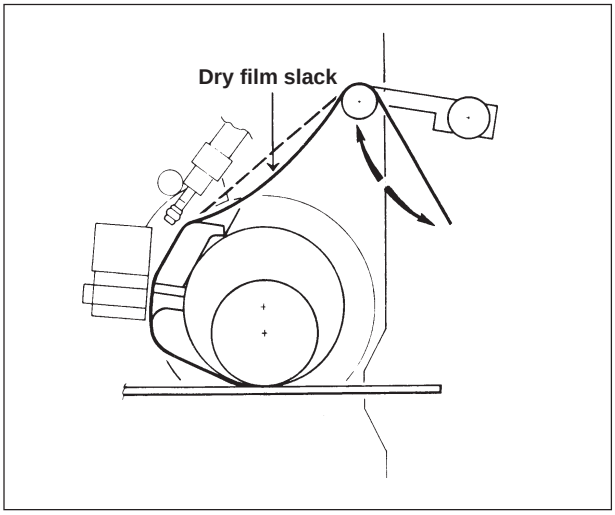
However, it can be altered on one end in order to eliminate wrinkles, as described before.

The pneumatic cylinders which drive the tension rolls are not equipped with a pressure regulator, only with speed regulators.

The recommended time for completion of the movement is approximately 1 sec.

The tension applied by the tension rolls to the film before lamination causes the dry film coil to unwind. The unwinding may vary according to the diameter of the coil, its static tension and the speed of the tension rolls.
Excessive unwinding of the dry film can cause problems when laminating short panels (less than 300 mm).
In fact, the slack created by the dry film coil unwinding too far can never be completely recovered and used by the panel because of its reduced length.

Consequently, after a few panels the tension rolls will no longer be able to stretch the film sufficiently, because the film has developed a slack greater than the travel of the tension rolls themselves.

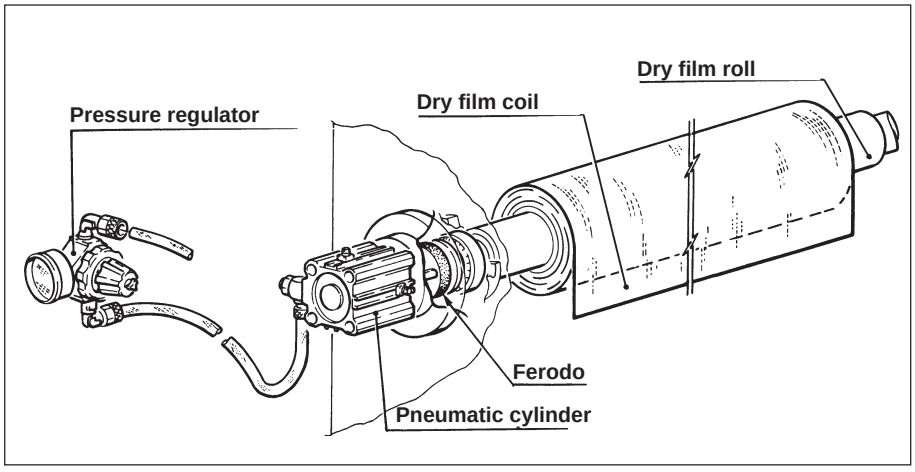


WARNING

It is therefore important to check the unwinding of the coils during the tension phase and adjust their degree of friction to keep the film always at the correct tension; if this is not sufficient, reduce the speed of the tension rolls.

3.3.X STATIC TENSIONING UNIT (FRICTIONS)

The film static tensioning units (one upper and one lower) provide a braking action on the unwinding of the dry film coils.
The braking action, applied to the shafts of the dry film rolls, is obtained by means of a friction block pressed against a disc fixed to one end of the shafts.

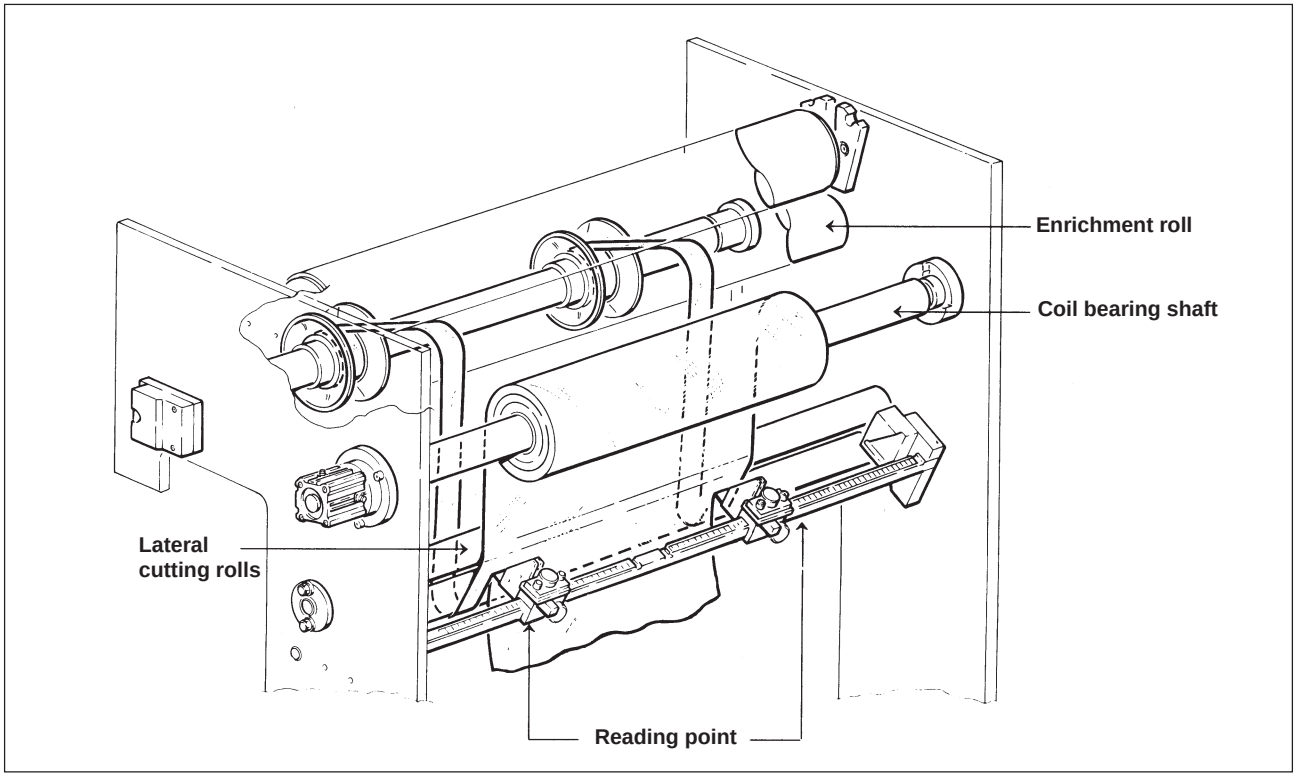


The force applied to the friction block is created by the air pressure supplied to the pneumatic cylinder.
The amount of pressure to be applied to the pneumatic cylinder depends on the diameter of the dry film coil.
Coils can have either standard or oversize diameter. In the latter case, the lever arm of the force needed to pull the film is greater, as is also the flywheel constituted by the coil itself.
When oversize diameter coils are employed, therefore, it is advisable to increase pressure to its maximum to obtain a braking action equal to the one obtained for coils of standard diameter.

As already mentioned in the chapter “Dynamic tension rolls”, good lamination greatly depends on the efficiency of the coil friction device, particularly when processing panels of reduced length.
Therefore we recommend reading what has been described in the chapter “Advice on lamination”, point 6.

3.3.Y LATERAL CUTTING

The Laminator 1600-SPC is equipped with a standard lateral cutting device for the dry film (one for the upper and one for the lower film) which reduces the film width according to lamination requirements.



A millimetric scale allows the accurate positioning of the knives on both sides of the machine.

The film edge to be cut (e.g. 10 mm) is subtracted from the measurement carried out on the dry film coils using the built-in millimetric scales.

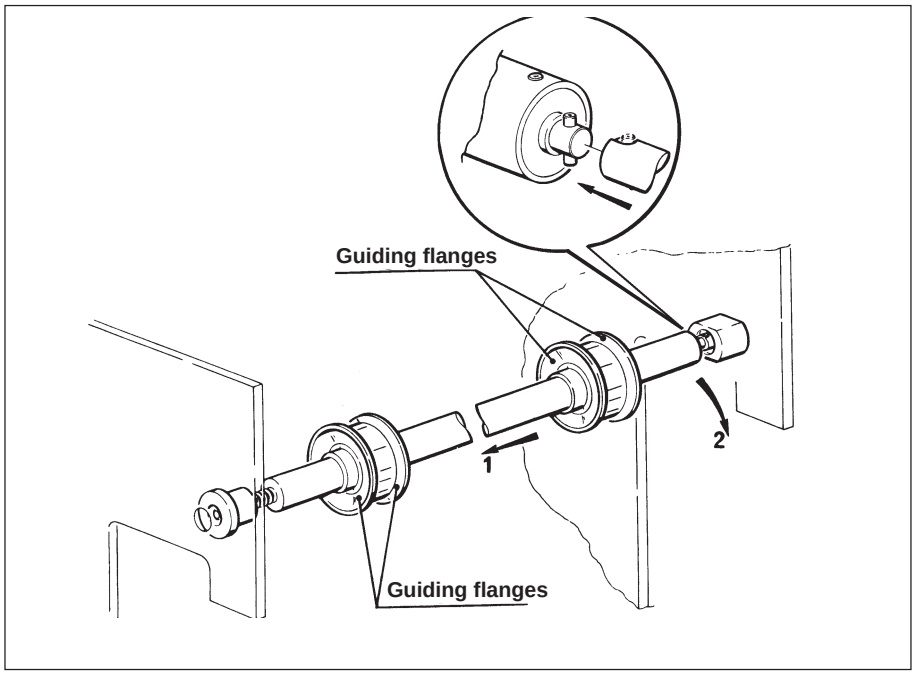
The position of the knives is read on the outside edge of the supports.

RANGE = 5÷100 mm for each side

The cut strips of film are recovered and wound round two metal rollers, each of them driven by its own gear motor fit to stand, without damage, a sudden stop of its shaft rotation.
This occurs when the slack has been completely recovered and the dry film coil is not unwinding.

The two motors rotate in opposite directions, so care must be taken not to mistake one for the other in case of removal.
If lateral cutting is unnecessary, the motors of the winding rolls can be turned off by means of the "**Lateral cutting ON-OFF**" switch placed on the control panel on the right side of the machine.

In order to make the removal of the polyethylene take-up rollers easier, we recommend to remove the winding shafts of lateral cutting first, as illustrated in the following page.



It is advisable to use the guiding flanges provided for rewinding the cut strips of dry film.

In order to obtain a neat cut of the dry film, both blades should be always kept well sharpened.

NOTE

Never allow the blades to touch the metal rolls. It would compromise their operation, as well as ruin the rolls.

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3.4 ADVICE FOR LAMINATION

Dry film lamination on printed circuit boards is performed by applying the resist film on the panel at a given pressure and temperature.
Because of its particular design and its operating cycle, the automatic laminator 1600-SPC does not require critical adjustments in the regulation of its parameters in order to achieve high quality lamination.

We give hereinafter a list of recommended values for the various lamination parameters.

3.4.1 Temperature of the input panel

It can be room temperature, but if it is necessary to laminate at a higher speed, the panel can be preheated.

WARNING

The possibility of laminating at a higher speed does not depend only on the temperature of the input panel, but on many other factors, such as surface preparation or type of dry film employed.

3.4.2 Temperature of the rubber pads for tacking

We suggest setting a temperature value according to:

- level of adhesion of the film
- level of surface preparation of the panel
- set time for tacking
- temperature of the input panel

Range: room temperature ÷45°C

NOTE

Some dry films need wholly cold pads.
In this case even moderate temperatures cause the formation of bubbles in the tacking area.

3.4.3 Tacking time

It can be set on the control panel, and should be adjusted according to:

- level of adhesion of the film
- level of surface preparation of the panel
- temperature of tacking pads
- temperature of the input panel.

Range: 0,1 ÷ 9,9 secs.

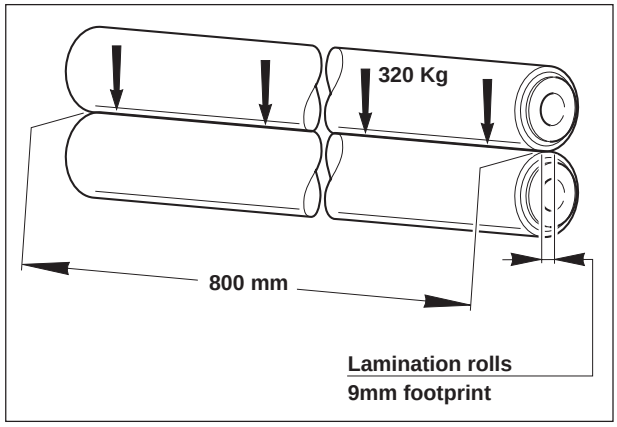
Recommended range: 1.5 ÷ 2.5 secs.

3.4.4 Lamination pressure

Lamination pressure should be set according to:

- type of dry film to laminate
- pressure of the compressed air supplied to the thrust cylinders
- diameter of lamination rolls
- hardness of lamination roll rubber
- width of the panel to laminate
- temperature of the input panel
- temperature of lamination rolls.

The Laminator 1600-SPC, with a pressure of 6 atm., developes a force of 320 kg.
This force is distributed on the entire length of the rolls (800 mm) and on the entire width of the rolls footprint.



This means that the specific mean pressure exerted on each square centimeter of dry film under lamination, pressure reading on the manometer being equal, will vary according to the width of the panel.

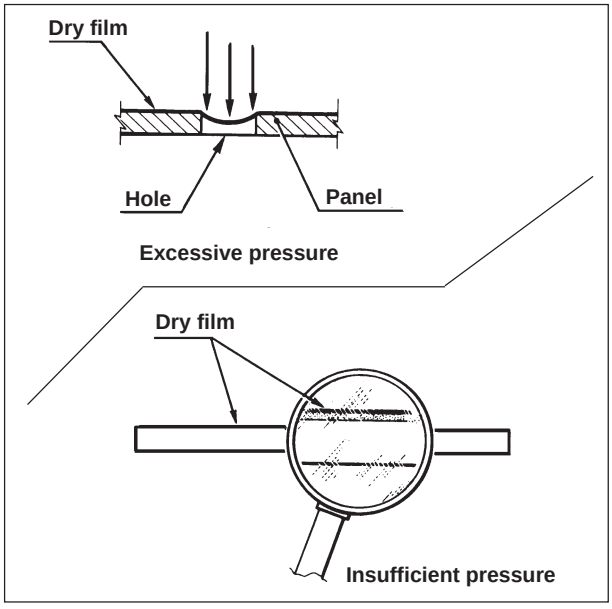
Example: 200 mm (20 cm) wide panel

$$\frac{320 \text{ Kg (Roll force)}}{20 \text{ cm} \bullet 1 \text{ cm (area-surface)}} = 16 \text{ Kg/cm}^2$$

Example: 400 mm (40 cm) wide panel

$$\frac{320 \text{ Kg (Roll force)}}{40 \text{ cm} \bullet 1 \text{ cm (area-surface)}} = 8 \text{ Kg/cm}^2$$

Whereas insufficient lamination pressure can result in a loss of adhesion between the dry film and the panel, excessive pressure can lead to the formation of wrinkles around moderate-size holes, mainly due to too much film sinking into the hole.



Range: 0 ÷ 6 bar

Recommended range: 4 ÷ 6 bar

3.4.5 Temperature of the lamination rolls

It can be preset on the display on the page "**Parameters variations**".
The temperature of the rolls should be set according to:

- lamination speed
- type of dry film
- type of panel to be laminated
- thickness of the panel to be laminated
- temperature of the input panel
- temperature of the output panel
- surface preparation

NOTE

A thicker panel, all other parameters being equal, will come out of the laminator with a lower temperature; the contrary will happen with a thinner panel.

Range: Room temperature ÷ 130°C

Standard values
100° ÷ 125°C
(thickness 1.6 mm at 2.8 m/min
input temperature 30°C)

WARNING

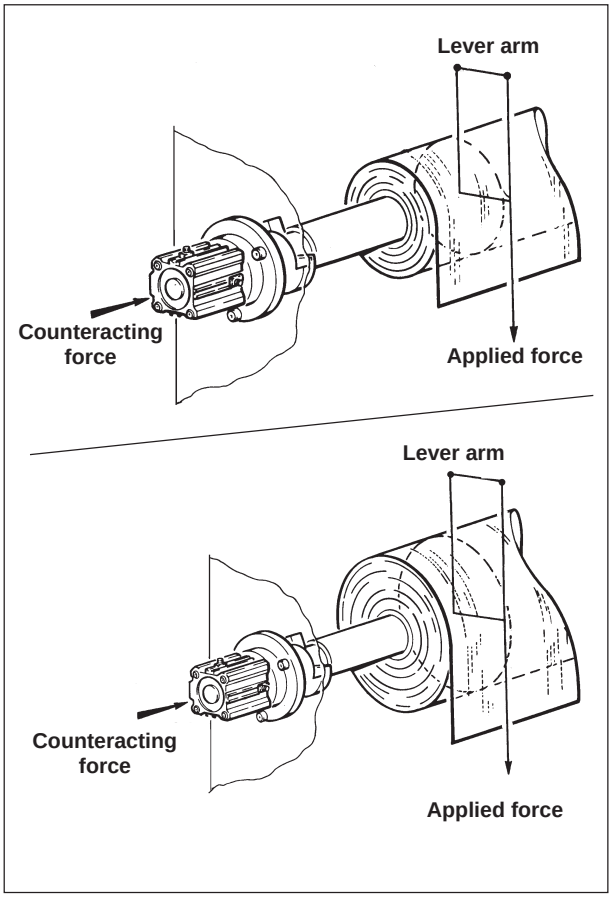
- ***The temperature of the lamination rolls is not the only parameter in determining the temperature of the output panel. Besides thickness and type of panel, also speed, lamination pressure and temperature of the input panels must be taken into account.***
- ***Rolls must never exceed the temperature of 130°C because this would ruin the rubber.***
- ***In any case, it is convenient to keep both the upper and the lower rolls at the same temperature.***

3.4.6 Static tension on the dry film coils

The dry film coils are placed on two metal rolls that have been fitted with a brake-lining friction disk which reduces their unwinding speed.

The braking action on the dry film rolls is decisive for keeping the film stretched and taut, and therefore important for good lamination results.

However, due to the design of the machine, such braking force is exerted on the dry film rolls, so its action differs according to the type of film coil (standard or oversize diameter).



It is therefore advisable to calibrate the pressure of the friction devices according to the type of dry film coil.

Range: 0 ÷ 6 bar

Recommended value: 2 ÷ 5 bar

3.4.7 Distance between input panels

It should be adjusted according to:

- length of panel
- tacking time
- lamination speed

We recommend keeping this distance to a minimum in order to avoid loss of productivity of the machine.

The operating cycle itself gives rise to shortenings and lengthenings of the distance between input panels during the lamination process.

We therefore recommend each user to calculate this distance by experience, according to his own specific requirements.

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3.5 SETTING UP THE UNIT

The Laminator 1600-SPC is delivered with all its accessories firmly secured to the structure.

WARNING

During transport, the vacuum pump, mounted on shock-absorbing rubber pads, is secured to the structure by a bracket which should be removed as soon as the machine has been assembled in the yellow room.

Proceed for installation as follows:

1. After positioning and levelling the machine in its operation area, remove any brackets and straps used in transport, and take out the removable central unit.
2. Make the pneumatic connection. It requires unlubricated, filtered and dehumidified compressed air at 6 atm.
3. For the electrical wall connection the power supply line must be equipped with an automatic switch as indicated in the chapter "TECHNICAL FEATURES".
4. Connect a ø 150 mm hose between the main exhaust system and the machine hose union.

WARNING

Make sure that there are no sharp bends in this hose, or the air flow will be reduced.

5. Open the general compressed air supply valve placed on the left side of the machine.
6. After making sure that all the mechanical parts are in place, and connecting the machine to the main power supply, turn the main power switch to position Ⓘ. An electronic device will check the correct connection of the phases.
7. Move out the removable unit and press SET UP ON.
8. Turn by hand the rotating sectors to the "Awaiting-Start of cutting" position and press the green push-button "LOADING OPERATION ENABLE", situated on the push-button panel of the removable central unit.
9. Once the button is pressed, the indexes will fix the sectors in this position.
10. The shafts for the dry film coils can be blocked or released by pressing cyclically the yellow light button "**FILM ROLLS ON=FREE**".
11. Load the two coils of film, following the thread-up diagram provided on the shoulders of the machine.
12. Block the dry film roll shafts and centre the dry film coils, using the metric scales.
13. If lateral cutting is also required, follow the same thread-up diagram.
14. Insert the film on the mylar removal rolls following the thread-up diagram. To make it easier to insert the film on the vacuum sectors, vacuum can be cut off via the yellow selector switch "**VACUUM UPPER OFF/ON/LOWER OFF**" situated on the removable unit.
15. Pull the film by hand and unwind a length of about a meter, checking that the thread-up route has been followed correctly. Then lay the film on the main vacuum sector and restore vacuum.

NOTE

Keep the film taut and, using the counterblade for support, cut the film along its cutting edge with a sharp knife.

WARNING

Take care not to cut the rubber pads.

16. Repeat the operation described under point 15. for the lower film.
    Push the removable unit back into the machine and lock it with the handle provided.

NOTE

The unlocking of the removable unit will cause an immediate emergency stop with the message:

• "**Trolley not locked**" (code 400).

DANGER

It is possible to by-pass this safety device via a key-switch placed on the front right crankcase, in order to run the machine while it is open.
This operation should be done by qualified maintenance personnel only, and under their own entire responsibility.

17. When the removable unit is firmly mounted inside the machine, block the locking handle provided. A microswitch will read its correct position and the machine will carry out the set-point procedure.
18. Set all lamination parameters:
    - roll temperature
    - tacking bars temperature
    - tacking time
    - length of the front edge
    - length of the rear edge
    - lamination speed
    - lamination pressure
    - static tension of the dry film
19. Press the yellow light button "**CYCLE START**" on the control cabinet and if all the parameters necessary for lamination (rolls temperature, pads temperature, etc.) are correct, place a scrap panel on the roller to check the mechanical quality of lamination (edges, absence of wrinkles and bubbles, etc.).
20. Finally proceed with the automatic loading of panels, leaving between each panel a distance which will depend on panel length, selected lamination speed and tacking time.

WARNING

Every time the machine stops for an emergency, the film must be repositioned, as described from point 15. onwards, before starting the lamination process again.

4.1 INPUTS/OUTPUTS LIST

4.1.A PLC digital input list

Ref.	A. B.		Ref. SAIA
I:	1/00	"SET UP ON" push button	In 00
I:	1/01	Emergency and "SET UP OFF" push buttons line	In 01
I:	1/02	"CYCLE START" push button	In 02
I:	1/03	"CYCLE STOP" push button	In 03
I:	1/04	Photocell centering board detecting	In 04
I:	1/05	Enable waiting from other units in line	In 05
I:	1/06	Sensor for upper tension roll at work point	In 06
I:	1/07	Sensor for lower tension roll at work point	In 07
I:	1/08	"UPPER-BOTH LAMINATION" selector	In 08
I:	1/09	"FILM ROLLS FREE-GREAPED" push button	In 09
I:	1/10	"UPPER VACUUM OFF" selector	In 10
I:	1/11	"LOWER VACUUM OFF" selector	In 11
I:	1/12	"FILM LOADING SET POINT" push button	In 12
I:	1/13	Missed or inverted phase control	In 13
I:	1/14	Compressed air pressure switch	In 14
I:	1/15	Safety guard switches and exclusion key selector	In 15
I:	2/00	Sensor for introduction board cylinder at work point	In 16
I:	2/01	Sensor for introduction board cylinder at set point	In 17
I:	2/02	Magnetic sensor for barrier close (up-work point)	In 18
I:	2/03	Magnetic sensor for barrier open (down-set point)	In 19
I:	2/04	Magnetic sensor for upper follower cylinder at set point	In 20
I:	2/05	Magnetic sensor for upper follower cylinder at work point	In 21
I:	2/06	Magnetic sensor for lower follower cylinder at set point	In 22
I:	2/07	Magnetic sensor for lower follower cylinder at work point	In 23
I:	2/08	Magnetic sensor for upper & lower index at set point	In 24
I:	2/09	Magnetic sensor for upper & lower index at work point	In 25
I:	2/10	Sensor for upper cutting device hooked	In 26
I:	2/11	Sensor for lower cutting device hooked	In 27
I:	2/12	Sensor for : start cutting position cam	In 28
I:	2/13	Sensor for : tacking position cam	In 29
I:	2/14	Sensor for : end of cutting position cam	In 30
I:	2/15	Sensor for : sectors slowing down position cam	In 31
I:	3/00	Magnetic sensor for blocked upper & lower film rolls	In 32
I:	3/01	Sensor for lamination rolls & tacking bars open	In 33
I:	3/02	Sensor for lamination roll closed	In 34
I:	3/03	Sensor for tacking bar closed	In 35
I:	3/04	Sensor for upper end of film & missed cut control	In 36
I:	3/05	Sensor for lower end of film & missed cut control	In 37
I:	3/06	Front edge overtravel control	In 38
I:	3/07	Sensor for lamination rolls closing position cam	In 39
I:	3/08	Microswitch for sliding trolley looked	In 40
I:	3/09	Vacuum pump motor overload switch	In 41
I:	3/10	Lateral centering failure signal	In 42
I:	3/11	End of film & missed cut on-off contr. selector (NO=on NC=off)	In 43
I:	3/12	Magn. sensor at set point control for thin panel device	In 44
I:	3/13	Photocell panel detecting on barrier	In 45
I:	3/14	Photocell output panel from lamination area	In 46
I:	3/15	Photocell rear edge panel detecting	In 47

4.1.B PLC digital output list

Ref.	A. B.		Ref. SAIA
O:	4/00	"SET UP" on push button lamp + relay for set up contactors.	Out 00
O:	4/01	"CYCLE START" push button lamp	Out 01
O:	4/02	"UPPER-BOTH LAMINATION" selector lamp	Out 02
O:	4/03	Ev for thin panel device	Out 03
O:	4/04		Out 04
O:	4/05		Out 05
O:	4/06		--
O:	4/07		--
O:	4/08	Ev for film dynamic tension rolls	Out 08
O:	4/09	Enable for control panel on central unit (left shoulder)	Out 09
O:	4/10	Ev closing lamination rolls extra pressure	Out 10
O:	4/11	Relay for speed range selection	Out 11
O:	4/12	Flashing alarm lamp	Out 12
O:	4/13	Acoustic alarm (buzzer)	Out 13
O:	4/14		--
O:	4/15		--
O:	5/00	Ev for panel gripping rolls up	Out 16
O:	5/01	Ev for frontal barrier	Out 17
O:	5/02	Ev for panel insertion cylinder	Out 18
O:	5/03	Ev for closing lamination rolls & tacking bars	Out 19
O:	5/04	Ev for hooking cutting device	Out 20
O:	5/05	Ev for groups cutting device	Out 21
O:	5/06		--
O:	5/07		--
O:	5/08	Ev for block-free film rolls	Out 24
O:	5/09	Ev for index insertion upper & lower	Out 25
O:	5/10	Ev for upper main vacuum sector	Out 26
O:	5/11	Ev for lower main vacuum sector	Out 27
O:	5/12	Ev for upper cut	Out 28
O:	5/13	Ev for lower cut	Out 29
O:	5/14		--
O:	5/15		--
O:	6/00	Enable for driver of front edge	Out 32
O:	6/01	Ev for lower secondary vacuum sector	Out 33
O:	6/02	El. clutch for introduction roll / conveyor	Out 34
O:	6/03	Ev for upper secondary vacuum sector	Out 35
O:	6/04	Enable for panel centering control	Out 36
O:	6/05	Enable for conveyor motor	Out 37
O:	6/06		--
O:	6/07		--
O:	6/08	On signal to a loader	Out 40
O:	6/09	El. clutch for input conveyor roller	Out 41
O:	6/10	El. clutch for lamination rolls & output roller	Out 42
O:	6/11	El. clutch for sectors	Out 43
O:	6/12	El. clutch for upper film feed roll	Out 44
O:	6/13	El. clutch for lower film feed roll	Out 45
O:	6/14		--
O:	6/15		--

4.1.C PLC analogue input list

Ref.	A. B.		Ref. SAIA
I:	7/00	Control for front edge position	In 56
I:	7/01	Output panel temperature	--
I:	8/00	Upper roll temperature (info from thermoregulator)	--
I:	8/01	Lower roll temperature (info from thermoregulator)	--
I:	9/00	Upper roll static pressure	--
I:	9/01	Lower roll static pressure	--
I:	9/02	Lamination pressure rolls	--
I:	9/03	Tacking bars heating %	--

4.1.D PLC analogue output list

Ref.	A. B.		Ref. SAIA
O:	7/00	Conveyor motor speed adjustment	Out 62
O:	7/01	Front edge value adjustment	Out 63
O:	8/00	Upper roll temperature (info to thermoregulator)	--
O:	8/01	Lower roll temperature (info to thermoregulator)	--

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5.1 COMPLETE LIST OF MESSAGES AND IDENTIFICATION CODES

- EMERGENCY-STOP ACTIVATED 1111
- LOW COMPRESSED AIR PRESSURE 140
- SAFETY GUARD OR DOORS OPEN 150
- VACUUM PUMP OVERLOADED 410
- LATERAL CENTERING FAILURE 421
- SLIDING TROLLEY NOT LOCKED 400
- MISSED OR INVERTED POWER LINE PHASE 130

- A BOARD HAS STOPPED IN THE LAMINATOR 41
- A BOARD HAS STOPPED IN THE LAMINATOR 40
- A BOARD HAS STOPPED IN THE LAMINATOR 451
- A BOARD HAS STOPPED IN THE LAMINATOR 450
- A BOARD HAS STOPPED IN THE LAMINATOR 1451
- A BOARD HAS STOPPED IN THE LAMINATOR 1041

- A BOARD HAS STOPPED IN THE LAMINATOR 1461
- A BOARD HAS STOPPED IN THE LAMINATOR 1471
- A BOARD HAS STOPPED IN THE LAMINATOR 460
- A BOARD HAS STOPPED IN THE LAMINATOR 461
- REAR EDGE PHOTOCELL DAMAGED 470
- REAR EDGE PHOTOCELL DAMAGED 471

- FRONTAL BARRIER MOVEMENT FAILURE 181
- FRONTAL BARRIER MOVEMENT FAILURE 191
- BARRIER UP MOVEMENT NOT COMPLETED 180
- BARRIER DOWN MOVEMENT NOT COMPLETED 190
- BARRIER POSITION SENSORS FAILURE 1181
- BARRIER POSITION SENSORS FAILURE 1191

- BOARD PUSHING DEVICE MOVEMENT FAILURE 161
- BOARD PUSHING DEVICE MOVEMENT FAILURE 171
- BOARD PUSHING DEVICE NOT AT SET POINT 170
- BOARD PUSHING DEVICE NOT AT WORK POINT 160
- BOARD PUSHING DEVICE SENSOR FAILURE 1161
- BOARD PUSHING DEVICE SENSOR FAILURE 1171

- TACKING BARS MOVEMENT FAILURE 331
- TACKING BARS MOVEMENT FAILURE 351
- TACKING BARS NOT COMPLETELY OPENED 330
- TACKING BARS NOT COMPLETELY CLOSED 350
- TACKING BAR SENSOR FAILURE 1331
- TACKING BAR SENSOR FAILURE 1351

- LAMINATION ROLLS MOVEMENT FAILURE 2331
- LAMINATION ROLLS MOVEMENT FAILURE 341
- LAMINATION ROLLS NOT COMPLETELY CLOSED 340
- LAMINATION ROLLS NOT COMPLETELY OPENED 2330
- LAMINATION ROLLS POSITION SENSORS FAILURE 3331
- LAMINATION ROLLS POSITION SENSORS FAILURE 1341

- INDEX CAMME MOVEMENT FAILURE 241
- INDEX CAMME MOVEMENT FAILURE 251
- INDEX CAMME NOT AT SET POINT 240
- INDEX CAMME NOT AT WORK POINT 250

- FILM ROLLS NOT LOCKED 320
- VACUUM EXCLUSION SELECTOR ON 1011

- TOP & BOT CUT HOOKING MOVEMENT FAILURE 2670
- TOP CUT HOOKING MOVEMENT FAILURE 260
- BOTTOM CUT HOOKING MOVEMENT FAILURE 270
- TOP & BOT SHEARS NOT AT SET POINT 2671
- TOP SHEARS NOT AT SET POINT 261
- BOTTOM SHEARS NOT AT SET POINT 271

- TOP & BOT TENSION ROLLS NOT AT WORK POINT 670
- TOP TENSION ROLL NOT AT WORK POINT 60
- BOTTOM TENSION ROLL NOT AT WORK POINT 70
- TOP & BOT TENSION ROLLS NOT RELEASED 671
- TOP TENSION ROLL NOT RELEASED 61
- BOTTOM TENSION ROLL NOT RELEASED 71

- FRONT EDGE DEVICE MOVEMENT FAILURE 381
- FRONT EDGE DEVICE MOVEMENT FAILURE 560

- TOP & BOT END OF FILM OR NO TACKING 3670
- TOP END OF FILM OR NO TACKING 360
- BOTTOM END OF FILM OR NO TACKING 370

- TOP & BOT MISSED CUT 3671
- TOP MISSED CUT 361
- BOTTOM MISSED CUT 371

- TOP & BOT CUTTING DEVICE NOT AT SET POINT 2022
- TOP CUTTING DEVICE NOT AT SET POINT 200
- BOTTOM CUTTING DEVICE NOT AT SET POINT 220
- TOP & BOT CUTTING DEVICE NOT AT WORK POINT 2123
- TOP CUTTING DEVICE NOT AT WORK POINT 210
- BOTTOM CUTTING DEVICE NOT AT WORK POINT 230

- INITIAL CUT POSITION NOT REACHED 281
- TACKING POSITION NOT REACHED 291
- END CUT POSITION NOT REACHED 301
- SLOWING DOWN POSITION NOT REACHED 311
- ROLLS CLOSING POSITION NOT REACHED 391

- INITIAL CUT POSITION SENSOR DAMAGED 280
- TACKING POSITION SENSOR DAMAGED 290
- END CUT POSITION SENSOR DAMAGED 300
- SLOWING DOWN POSITION SENSOR DAMAGED 310
- ROLLS CLOSING POSITION SENSOR DAMAGED 390

- LAMINATION ROLLS TEMPERATURE OUT OF RANGE 131
- LAMINATION ROLLS TEMPERATURE OUT OF RANGE 801
- LAMINATION ROLLS TEMPERATURE OUT OF RANGE 811
- LAMINATION ROLLS TEMPERATURE OUT OF RANGE 8011

- THIN PANEL DEVICE NOT AT SET POINT 440

5.2 DESCRIPTION OF ALARM MESSAGES ON ALLEN BRADLEY DISPLAY

- **EMERGENCY - STOP ACTIVATED**. ..... cod. **1111**

  The machine has been stopped in emergency by one of the emergency push buttons or by the set up off push button.

- **LOW COMPRESSED AIR PRESSURE**. ..... cod. **140**

  The machine has stopped or is unable to start, due to a low compressed air pressure.

- **SAFETY GUARD OR DOORS OPEN**. ..... cod. **150**

  The machine has stopped or is unable to start because one or more doors are open (left and right doors of the central unit, or left front door).

- **VACUUM PUMP OVERLOADED**. ..... cod. **410**

  The machine has stopped or is unable to start because the motor of the vacuum pump has gone into overload and its thermal relay has been activated.

- **LATERAL CENTERING FAILURE**. ..... cod. **421**

  The machine has stopped or is unable to start because during the closing or opening phase one of the 3 overstep microswitches switches FC72 - FC73 - FC73A is activated or the thermal protection for the motor placed on the electronic panel is activated.

- **SLIDING TROLLEY NOT LOCKED**. ..... cod. **400**

  The machine has stopped or is unable to start because the removable central unit is open or has not been firmly locked to the fixed unit.

- **MISSED OR INVERTED POWER LINE PHASE**. ..... cod. **130**

  The machine has stopped or is unable to start because it has detected the wrong or missed connection of at least one of the power phases.
  Input I : 1/13 off = missed or inverted phases.

- **A BOARD HAS STOPPED IN THE LAMINATOR**. ..... cod. **41**

  The machine has stopped because during the incoming of the panel in the machine the centering unit barrier photocell FC69 is not activated.

- **A BOARD HAS STOPPED IN THE LAMINATOR**. ..... cod. **40**

  The machine has stopped because at the release of the rear edge photocell FC 47, the centering unit barrier photocell FC 69 is interfered.

- **A BOARD HAS STOPPED IN THE LAMINATOR**. ..... cod. **451**

  The machine has stopped because the panel at barrier detecting photocell FC 45 is activated although the panel is about 200 mm beyond.

- **A BOARD HAS STOPPED IN THE LAMINATOR**. ..... cod. **450**

  The machine has stopped because during the incoming of the panel in the machine the photocell panel barrier detecting FC45 is not activated.

- **A BOARD HAS STOPPED IN THE LAMINATOR**. ..... cod. **1451**

  During the set point phase and during the removal of the central unit, the photocell for detecting boards at the frontal barrier FC45 must be free, otherwise the message will stay and the machine will be unable to continue with further operations.

- **A BOARD HAS STOPPED IN THE LAMINATOR**. ..... cod. **1041**

  During the set point phase and the removal of the central unit the centering unit barrier photocell must be free, otherwise the message will stay and the machine will be unable to continue with further operations.

- **A BOARD HAS STOPPED IN THE LAMINATOR**. ..... cod. **1461**

  During the set-point phase and during the removal of the central unit, theoutput board photocell FC 46 must be free, otherwise the message will stay and the machine will be unable to continue with further operations.

- **A BOARD HAS STOPPED IN THE LAMINATOR**. ..... cod. **1471**

  During the set-point phase and during the removal of the central unit, the rear edge photocell FC 47 must be free, otherwise the message will stay and the machine will be unable to continue with further operations.

- **A BOARD HAS STOPPED IN THE LAMINATOR**. ..... cod. **460**

  At every cycle, the exact transport sequence of the panel is checked; if this doesn't happen as established the machine will stop in emergency.

- **A BOARD HAS STOPPED IN THE LAMINATOR**. ..... cod. **461**

  During the lamination phase if a board is blocked under the photocell FC46, the cycle stops and the board must be removed and the cycle reactivated.

- **REAR EDGE PHOTOCELL DAMAGED**. ..... cod. **470**

  At every cycle, when the photocell on the frontal barrier is activated, the ON state of the rear edge photocell FC47 is checked, otherwise the machine stops in emergency. Verify the exact calibration of the sensitivity, if necessary, by adjusting the trimmer of the photocell.

- **REAR EDGE PHOTOCELL DAMAGED**. ..... cod. **471**

  At every cycle, when the photocell on the frontal barrier is unenabled, the state OFF of the rear edge photocell FC47 is checked, otherwise the machine stops in emergency. Verify the exact calibration of the sensitivity, if necessary, by adjusting the trimmer of the photocell.

- **FRONTAL BARRIER MOVEMENT FAILURE**. ..... cod. **181**

  The machine has stopped because during the opening phase of the frontal barrier the closing sensor FC18 is not released.

- **FRONTAL BARRIER MOVEMENT FAILURE**. ..... cod. **191**

  The machine has stopped because during the closing phase of the frontal barrier the opening sensor FC19 is not released.

- **BARRIER UP MOVEMENT NOT COMPLETED**. ..... cod. **180**

  The machine has stopped because during the closing phase of the frontal barrier the closing sensor FC18 is not activated.

- **BARRIER DOWN MOVEMENT NOT COMPLETED**. ..... cod. **190**

  The machine has stopped or is unable to start because during the opening phase of the frontal barrier the opening sensor FC19 is not activated.

- **BARRIER POSITION SENSORS FAILURE**. ..... cod. **1181**

  The machine has stopped because during the closing phase of the frontal barrier the closing sensor FC18 is already activated.

- **BARRIER POSITION SENSORS FAILURE**. ..... cod. **1191**

  The machine has stopped because during the opening phase of the frontal barrier the opening sensor FC19 is already activated.

- **BOARD PUSHING DEVICE MOVEMENT FAILURE**. ..... cod. **161**

  The machine has stopped because during the return phase of the board insertion device the work point sensor FC16 is not released.

- **BOARD PUSHING DEVICE MOVEMENT FAILURE**. ..... cod. **171**

  The machine has stopped because during the insert phase of the board insertion device the set point sensor FC17 is not released.

- **BOARD PUSHING DEVICE NOT AT SET POINT**. ..... cod. **170**

  The machine has stopped or is unable to start because during the return phase of the board insertion device the set point sensor FC17 is not activated.

- **BOARD PUSHING DEVICE NOT AT WORK POINT**. ..... cod. **160**

  The machine has stopped because during the insert phase of the board insertion device the work point sensor FC16 is not activated.

- **BOARD PUSHING DEVICE SENSOR FAILURE**. ..... cod. **1161**

  The machine has stopped because during the insert phase of the board insertion device the work point sensor FC16 is already activated.

- **BOARD PUSHING DEVICE SENSOR FAILURE**. ..... cod. **1171**

  The machine has stopped because during the return phase of the board insertion device the set point sensor FC17 is already activated.

- **TACKING BARS MOVEMENT FAILURE**. ..... cod. **331**

  The machine has stopped because during the closing phase of the tacking bars the opening sensor FC33 is not released.

- **TACKING BARS MOVEMENT FAILURE**. ..... cod. **351**

  The machine has stopped because during the opening phase of the tacking bars the closing sensor FC35 is not released.

- **TACKING BARS NOT COMPLETELY OPENED**. ..... cod. **330**

  The machine has stopped or is unable to start because during the opening phase of the tacking bars the opening sensor FC33 is not activated.

- **TACKING BARS NOT COMPLETELY CLOSED**. ..... cod. **350**

  The machine has stopped because during the closing phase of the tacking bars the closing sensor FC35 is not activated.

- **TACKING BAR SENSOR FAILURE**. ..... cod. **1331**

  The machine has stopped because during the opening phase of the tacking bars the opening sensor FC33 is already activated.

- **TACKING BAR SENSOR FAILURE**. ..... cod. **1351**

  The machine has stopped because during the closing phase of the tacking bars the closing sensor FC35 is already activated.

- **LAMINATION ROLLS MOVEMENT FAILURE**. ..... cod. **2331**

  The machine has stopped because during the closing phase of the lamination rolls the opening sensor FC33 is not released.

- **LAMINATION ROLLS MOVEMENT FAILURE**. ..... cod. **341**

  The machine has stopped because during the opening phase of the lamination rolls the closing sensor FC34 is not released.

- **LAMINATION ROLLS NOT COMPLETELY CLOSED**. ..... cod. **340**

  The machine has stopped because during the opening phase of the lamination rolls the opening sensor FC34 is not activated.

- **LAMINATION ROLLS NOT COMPLETELY OPENED**. ..... cod. **2330**

  The machine has stopped or is unable to start because during the opening phase of the lamination rolls the sensor FC33 is not activated.

- **LAMINATION ROLLS POSITION SENSORS FAILURE**. ..... cod. **3331**

  The machine has stopped because during the opening phase of the lamination rolls the opening sensor FC33 is already activated.

- **LAMINATION ROLLS POSITION SENSORS FAILURE**. ..... cod. **1341**

  The machine has stopped because during the closing phase of the lamination rolls the closing sensor FC34 is already activated.

- **INDEX CAM MOVEMENT FAILURE**. ..... cod. **241**

  The machine has stopped because during the insertion phase of the index cam the external sensor FC24 is not released.

- **INDEX CAM MOVEMENT FAILURE**. ..... cod. **251**

  The machine has stopped because during the outlet of the index cam the internal sensor FC25 is not released.

- **INDEX CAM NOT AT SET POINT**. ..... cod. **240**

  The machine has stopped or is unable to start because during the outlet of the index cam the external sensor FC24 is not activated.

- **INDEX CAM NOT AT WORK POINT**. ..... cod. **250**

  The machine has stopped because during the insertion phase of the index cam the internal sensor FC25 is not activated.

- **FILM ROLLS NOT LOCKED**. ..... cod. **320**

  During the film loading and the repositioning of the rotating sectors the upper and lower sensors FC32A and FC32B for film rolls not locked are checked. An OFF condition indicates that the dry film rolls are not locked, and prevents the machine from continuing with further operations.

- **VACUUM EXCLUSION SELECTOR ON**. ..... cod. **1011**

  During the film loading and repositioning of the rotating sectors the vacuum exclusion selectors S10 and S11 are checked. An ON condition indicates the misplacement of the selectors, and prevents the machine from continuing with further operations.

- **TOP & BOT CUT HOOKING MOVEMENT FAILURE**. ..... cod. **2670**

  The machine has stopped because during the cutting groups hooking phase the top and bot sensors FC26 and FC27 are not activated.

- **TOP CUT HOOKING MOVEMENT FAILURE**. ..... cod. **260**

  The machine has stopped because during the cutting group hooking phase the top sensor FC26 is not activated.

- **BOTTOM CUT HOOKING MOVEMENT FAILURE**. ..... cod. **270**

  The machine has stopped because during the cutting group hooking phase the bot sensor FC27 is not activated.

- **TOP & BOT SHEARS NOT AT SET POINT**. ..... cod. **2671**

  The machine has stopped or is unable to start because during the cutting groups unhooking phase the top and bot sensors FC26 and FC27 are not released.

- **TOP SHEARS NOT AT SET POINT**. ..... cod. **261**

  The machine has stopped or is unable to start because during the cutting group unhooking phase the top sensor FC26 is not released.

- **BOTTOM SHEARS NOT AT SET POINT**. ..... cod. **271**

  The machine has stopped or is unable to start because during the cutting group unhooking phase the bot sensor FC27 is not released.

- **TOP & BOT TENSION ROLLS NOT AT WORK POINT**. ..... cod. **670**

  The machine stopped because during the tension rolls extension phase the top and bot sensors FC6 and FC7 are not activated.

- **TOP TENSION ROLL NOT AT WORK POINT**. ..... cod. **60**

  The machine stopped because during the tension roll extension phase the top sensor FC6 is not activated.

- **BOTTOM TENSION ROLL NOT AT WORK POINT**. ..... cod. **70**

  The machine stopped because during the tension roll extension phase the bot sensor FC7 is not activated.

- **TOP & BOT TENSION ROLLS NOT RELEASED**. ..... cod. **671**

  The machine stopped because during the tension rolls release phase the top and bot sensors FC6 and FC7 are not released.

- **TOP TENSION ROLL NOT RELEASED**. ..... cod. **61**

  The machine stopped because during the tension roll release phase the top sensor FC6 is not released.

- **BOTTOM TENSION ROLL NOT RELEASED**. ..... cod. **71**

  The machine stopped because during the tension roll release phase the bot sensor FC7 is not released.

- **FRONT EDGE DEVICE MOVEMENT FAILURE**. ..... cod. **381**

  The machine has stopped or is unable to start because during the regulation phase of the front edge, one of the two overtravel microswitches FC100 or FC110, of the movement group, is activated or the thermal protection for the motor placed on the control panel is activated.

- **FRONT EDGE DEVICE MOVEMENT FAILURE**. ..... cod. **560**

  The machine has stopped because during the regulation phase of the front edge, the preselected position has not be reached within the max time limit of 20 sec.

- **TOP & BOT END OF FILM OR NO TACKING**. ..... cod. **3670**
  The machine has stopped because the film in the front side is not attached to the panel, because the rolls of dry film are finished or because there is too much slack in the dry film (by mistake). The check is managed by upper and lower sensors FC36 and FC37.

- **TOP END OF FILM OR NO TACKING**. ..... cod. **360**

  The machine has stopped because the film in the front side is not attached to the board, because the top roll of dry film is finished or because there is too much slack in the dry film (by mistake). The check is managed by upper sensor FC36.

- **BOTTOM END OF FILM OR NO TACKING**. ..... cod. **370**

  The machine has stopped because the film in the front side is not attached to the board, because the bottom roll of dry film is finished or because there is too much slack in the dry film (by mistake). The check is managed by lower sensor FC37.

- **TOP & BOT MISSED CUT**. ..... cod. **3671**

  The machine has stopped because the film has not been cut, either partially or completey. The check is managed by upper and lower sensors FC36 and FC37

- **TOP MISSED CUT**. ..... cod. **361**

  The machine has stopped because the film has not been cut, either partially or completey. The check is managed by upper sensor FC36.

- **BOTTOM MISSED CUT**. ..... cod. **371**

  The machine has stopped because the film has not been cut, either partially or completey. The check is managed by lower sensor FC37.

- **TOP & BOT CUTTING DEVICES NOT AT SET POINT**. ..... cod. **2022**

  The machine has stopped or is unable to start because during the return phase of the cutting group devices the upper and lower set point sensors FC20 and FC22 are not activated. (Set point position and retracted cylinders).

- **TOP CUTTING DEVICE NOT AT SET POINT**. ..... cod. **200**

  The machine has stopped or is unable to start because during the return phase of the cutting group device the upper set point sensor FC20 is not activated. (Set point position and retracted cylinder).

- **BOTTOM CUTTING DEVICE NOT AT SET POINT**. ..... cod. **220**

  The machine has stopped or is unable to start because during the return phase of the cutting group device the lower set point sensor FC22 is not activated. (Set point position and retracted cylinder).

- **TOP & BOT CUTTING DEVICES NOT AT WORK POINT**. ..... cod. **2123**

  The machine has stopped because during the unhooking phase of the cutting group devices the upper and lower work point sensors FC21 and FC23 are not activated. (Work point position and extended cylinders).

- **TOP CUTTING DEVICE NOT AT WORK POINT**. ..... cod. **210**

  The machine has stopped because during the unhooking phase of the cutting group device the upper work point sensor FC21 is not activated. (Work point position and extended cylinder).

- **BOTTOM CUTTING DEVICE NOT AT WORK POINT**. ..... cod. **230**

  The machine has stopped because during the unhooking phase of the cutting group device the lower work point sensor FC23 is not activated. (Work point position and extended cylinder).

- **INITIAL CUT POSITION NOT REACHED**. ..... cod. **281**

  The machine has stopped because the sensor of initial cut position FC 28, during its own positioning phase and within a maximum time referred to the speed, has not reached the slot on its own cam.

- **TACKING POSITION NOT REACHED**. ..... cod. **291**

  The machine has stopped because the sensor of tacking position FC 29, during its own positioning phase and within a maximum time referred to the speed, has not reached the slot on its own cam.

- **END CUT POSITION NOT REACHED**. ..... cod. **301**

  The machine has stopped because the sensor of end of cutting position FC 30, during its own positioning phase and within a maximum time referred to the speed, has not reached the slot on its own cam.

- **SLOWING DOWN POSITION NOT REACHED**. ..... cod. **311**

  The machine has stopped because the sensor of slowing down position FC 31, during its own positioning phase and within a maximum time referred to the speed, has not reached the slot on its own cam.

- **ROLLS CLOSING POSITION NOT REACHED**. ..... cod. **391**

  The machine has stopped because the sensor of rolls closing position FC 39, during its own positioning phase and within a maximum time referred to the speed, has not reached the slot on its own cam.

- **INITIAL CUT POSITION SENSOR DAMAGED**. ..... cod. **280**

  During operation and before starting the relative positioning phase, the state of the sensor for initial cut position FC28 is checked. If this sensor is already in OFF condition, it indicates a failure of the sensor or its misplacement. In this event the machine will immediately stop in emergency.

- **TACKING POSITION SENSOR DAMAGED**. ..... cod. **290**

  During operation and before starting the relative positioning phase, the state of the sensor for tacking position FC29 is checked. If this sensor is already in OFF condition, it indicates a failure of the sensor or its misplacement. In this event the machine will immediately stop in emergency.

- **END CUT POSITION SENSOR DAMAGED**. ..... cod. **300**

  During operation and before starting the relative positioning phase, the state of the sensor for end of cutting position FC30 is checked. If this sensor is already in OFF condition, it indicates a failure of the sensor or its misplacement. In this event the machine will immediately stop in emergency.

- **SLOWING DOWN POSITION SENSOR DAMAGED**. ..... cod. **310**

  During operation and before starting the relative positioning phase, the state of the sensor for slowing down position FC31 is checked. If this sensor is already in OFF condition, it indicates a failure of the sensor or its misplacement. In this event the machine will immediately stop in emergency.

- **ROLLS CLOSING POSITION SENSOR DAMAGED**. ..... cod. **390**

  During operation and before starting the relative positioning phase, the state of the (sensor for rolls closing position FC39) is checked. If this sensor is already in OFF condition, it indicates a failure of the sensor or its misplacement. In this event the machine will immediately stop in emergency.

- **LAMINATION ROLLS TEMPERATURE OUT OF RANGE**. ..... cod. **131**

  While waiting for the new panel, the programmed alarms values on the thermoregulators are checked; if the temperature is over the set range the machine will remain in stand-by until the temperature returns within the desired range.

- **LAMINATION ROLLS TEMPERATURE OUT OF RANGE**. ..... cod. **801**

  The machine has stopped or is unable to start because the upper roll temperature has exceeded the limit of 140°C. The check is managed by the upper thermoregulator.

- **LAMINATION ROLLS TEMPERATURE OUT OF RANGE**. ..... cod. **811**

  The machine has stopped or is unable to start because the lower roll temperature has exceeded the limit of 140°C. The check is managed by the lower thermoregulator.

- **LAMINATION ROLLS TEMPERATURE OUT OF RANGE**. ..... cod. **8011**

  The machine has stopped or is unable to start because the upper and lower rolls temperature has exceeded the limit of 140°C. The check is managed by the upper and lower thermoregulators.

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LOW BATTERY PLC LEVEL To start push SET UP button

The PLC displays the message without interfering with the machine operation.
We recommend, however, in order to save the stored data, to replace the battery within 30 days from the first display of the message.

PLC battery

The Allen Bradley series SLC PLC is equipped with a condenser which keeps data in the memory if, once the discharged battery has been disconnected, the new one is installed within 30 minutes.

In the event of a power failure, a non-rechargeable 3V lithium battery is employed for keeping the data.

Type: - SANYO CR 14250SE

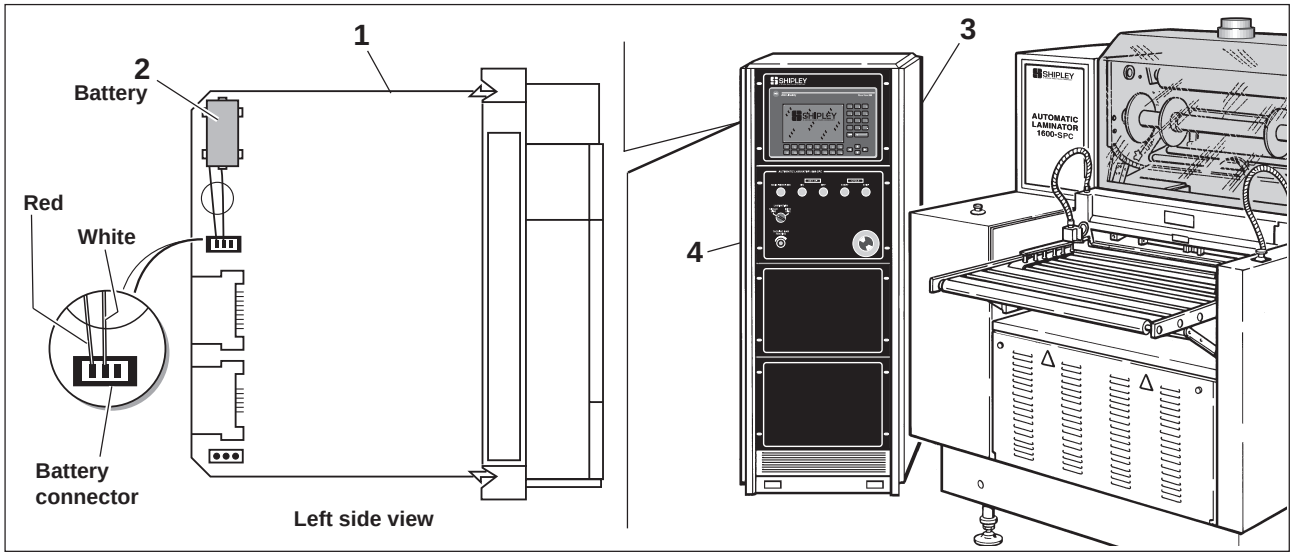
The memory life (PLC not powered) is from 1 to 5 years. The self discharge rate of the battery is approximately 5% yearly.
These values relate to room temperature of 25°C.

Besides the message visualized on the machine display, in the case of discharged battery, failure of uninstalled battery, the red led “BATT” on the PLC will light up.

WARNING

The components installed in the module (1) are sensitive to electromagnetic charges.

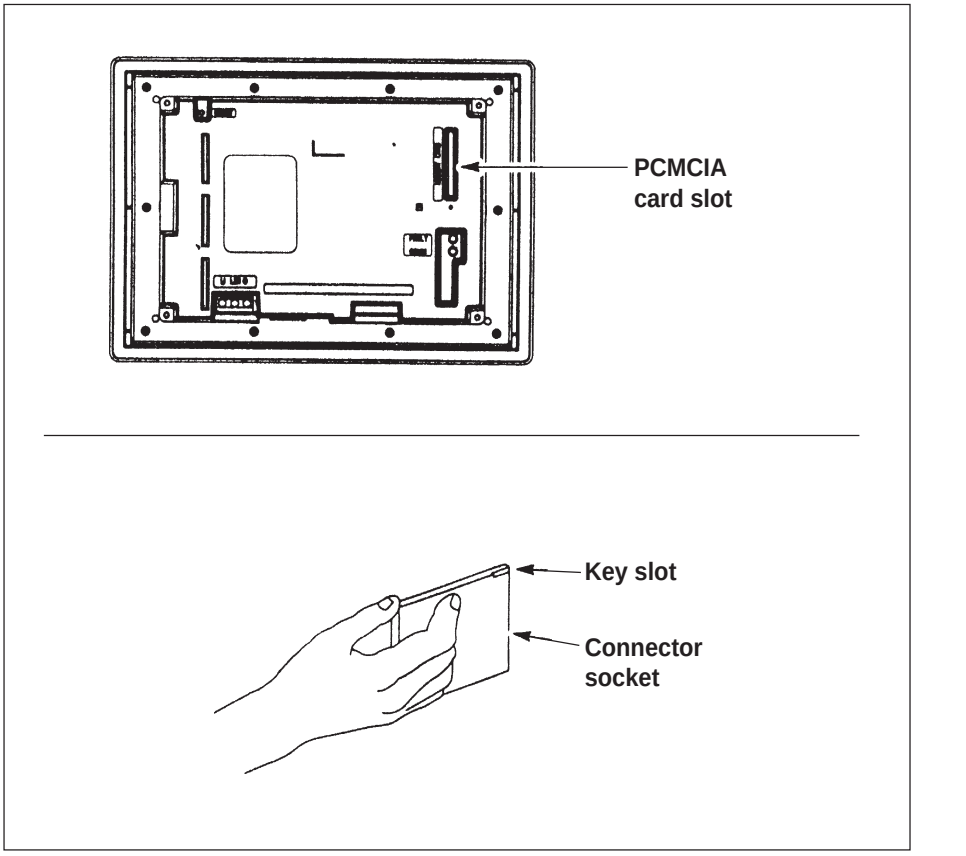
Replace the battery as follows:
- switch off the machine;
- open the rear door (3) of the control cabinet (4);
- remove the CPU module (1) from the PLC rack;
- remove the existing battery (2) from its chamber and replace it with a new one;
- insert the connector of the new battery in its tap as illustrated below;
- put the CPU module (1) back in the PLC rack;
- close the door (3) of the control cabinet and turn on the machine.



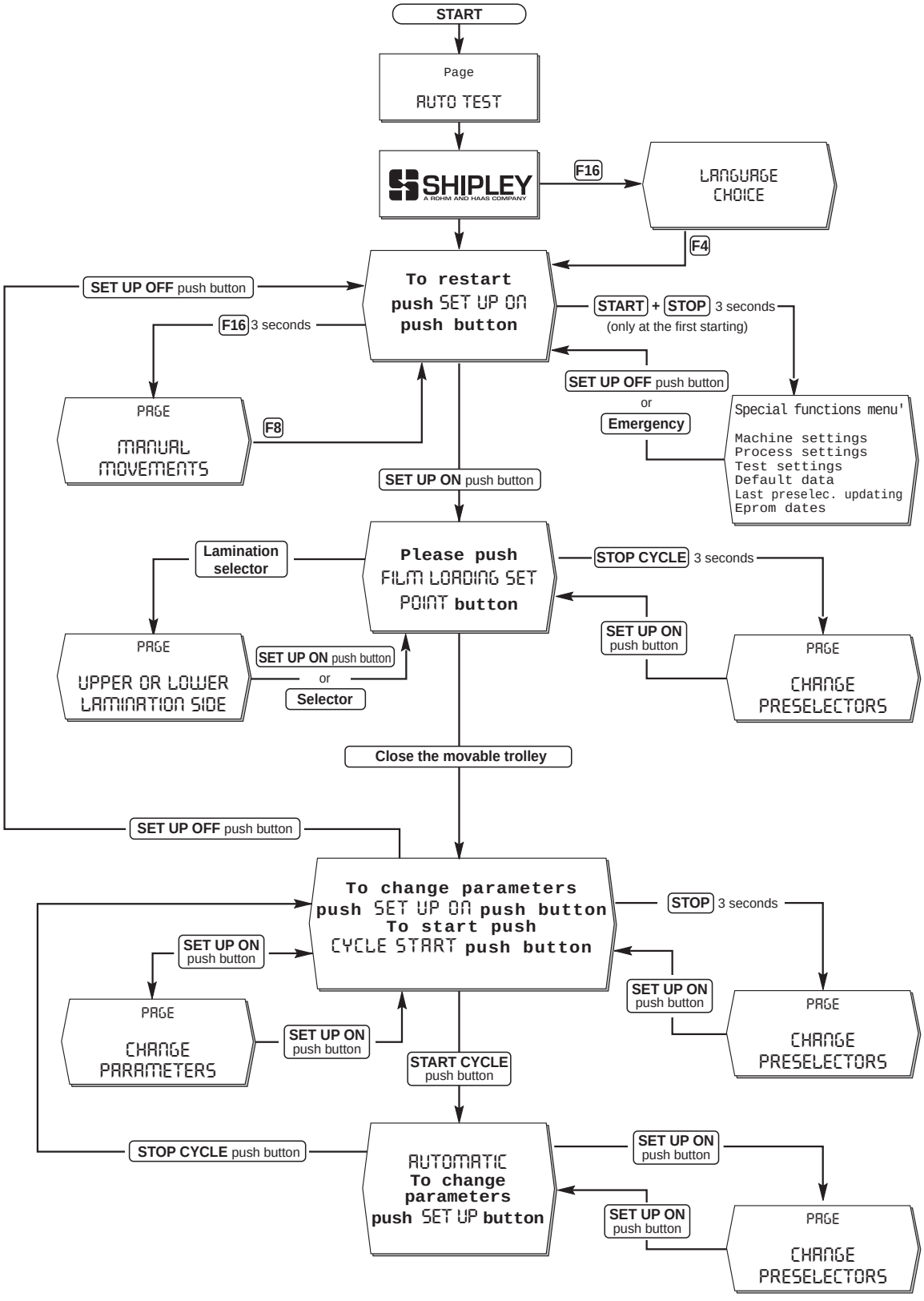
DISPLAY A.B. PV900
REPLACEMENT OF THE FLASH ATA CARD
CONTAINING THE MESSAGES

- - Commands for loading messages on PV900 from Memory Card

1) Before turning on the machine, insert the Memory Card in its slot at the rear of the PV900.
2) When the MORTON logo appears on the display, press◀ (cursor left) and ▶(cursor right) simultaneously to enter the menu.
3) Press ▼ (cursor down) or ▲ (cursor up) to select “MEMORY CARD”.
4) Press [Enter ↵] to confirm the choice.
5) Press ▼(cursor down) or ▲(cursor up) to select the project file in the chosen language.
6) Press [F2] to load the project file.
7) Press [F2] to confirm loading.
8) Wait for the end of loading.
9) Repeat the operations showed in the points 2, 3 and 4, then press [F8] to disconnect the Memory Card and confirm with [F2].
10) Remove the Memory Card as described in the message and exit with [F16] , then press [F2] to return to RUN.



FLOW CHART OF ALLEN BRADLEY PV 900 DISPLAY



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BEFORE PROCEEDING WITH ANY MAINTENANCE OPERATION, SWITCH OFF THE MACHINE AND WAIT FOR ALL THE HEATED PARTS TO COOL DOWN COMPLETELY

1600-SPC	Periodic maintenance operations recommended every:					
	Shift	Day max. 8 hours	Week max. 40 hours	Month max. 160 hours	6 months max. 1000 hours	Year max. 2000 hours
Cleaning of lamination rolls, tacking rolls, blades and counterblades	●					
Replacement of lateral cutting blades	●					
Cleaning of upper and lower vacuum sectors, enrichment rolls, removal rolls, lateral cutting, dynamic tension rolls and photocell mirrors of the centering unit (alcohol)		●				
Cleaning of feed rolls, input and output rollers (alcohol)			●			
Cleaning of brake pads (dry brush)			●			
Cleaning of vacuum pump filter and silencer on the air discharge vent (compressed air)			●			
General cleaning (cap, safety guards, etc) (cloth and detergent)				●		
Cleaning of antistatic bars (brush and alcohol)				●		
Check and removal of condensate + cleaning of compressed air filter (compressed air)				●		
Check on the efficiency of cutting blades				●		
Check on wear and tension of belts					●	
Check on wear of brake pads					●	
Check on wear of motor brushes and dynamo					●	
Replacement of vacuum pump filter					●	
Check on clutches gaps (all at 0.2 mm)						●
Check on wear of contactors and relays						●

Picture 9 - CHECKS AND MAINTENANCE TABLE

6.1 CHECKS AND MAINTENANCE

6.1.A GENERAL INFORMATION

A scrupulous compliance with the maintenance rules included in this chapter will guarantee good preservation and satisfactory operating of the machine.
All maintenance work, adjustments and/or replacements must be carried out by skilled personnel.

WARNING

Should any irregularity, failure or malfunctioning occur in any part of the machine, CHECK, FIRST OF ALL, that all instructions given in the preceding chapters have been complied with.
All interventions must be promptly carried out, as soon as an irregularity arises, in order to avoid worsening the trouble and further damaging other parts of the machine.

6.1.B ROUTINE MAINTENANCE

The laminator 1600-SPC has been designed and manufactured so as to require no special maintenance. The electric panel has been designed and manufactured in compliance with the most severe safety rules and according to the international directions on the matter.

6.1.C EXTRAORDINARY MAINTENANCE

The main operations of extraordinary maintenance are described below.

NOTE

For any operation not described in this manual, consult MORTON technical personnel.

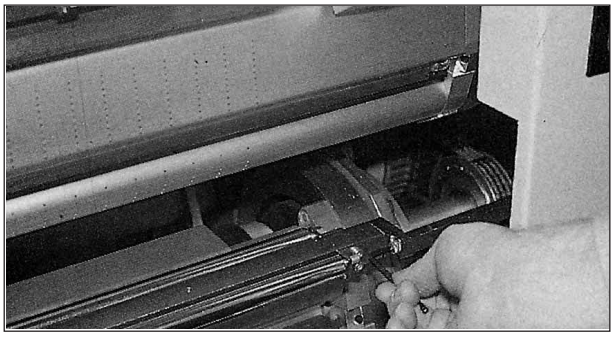
6.1.C.1 REPLACEMENT OF THE LAMINATION ROLLS

WARNING

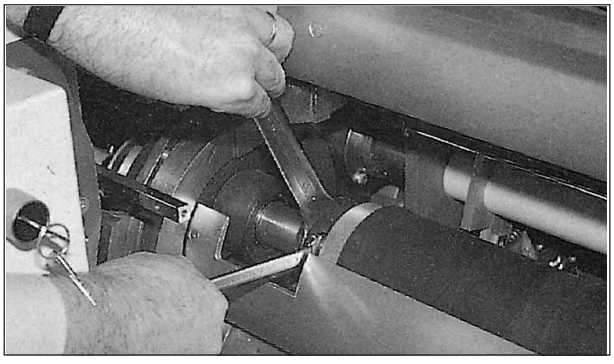
Replacement of the lamination rolls should only be carried out by specially trained personnel using original spare parts which comply with the originals as regards both materials and design.

Replace the rolls as follows:

1. Switch off and disconnect the laminator, then wait for the rolls to cool down to room temperature.
2. Take out the removable unit of the machine.
3. Remove the panel support rollers or the thin panel support unit, if installed.

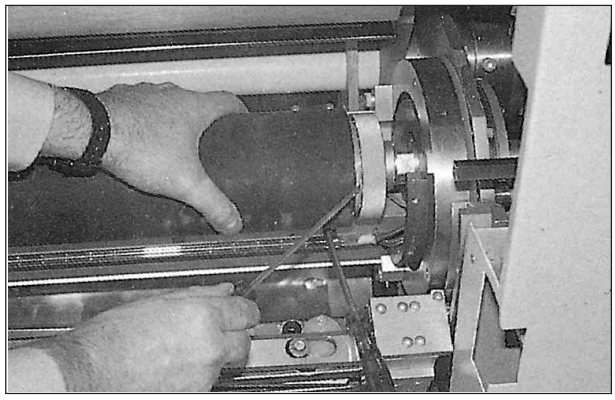


4. Block the shaft of the lamination roll with a 30 mm key and unscrew the three screws of the right flange. Repeat the operation for the left flange.

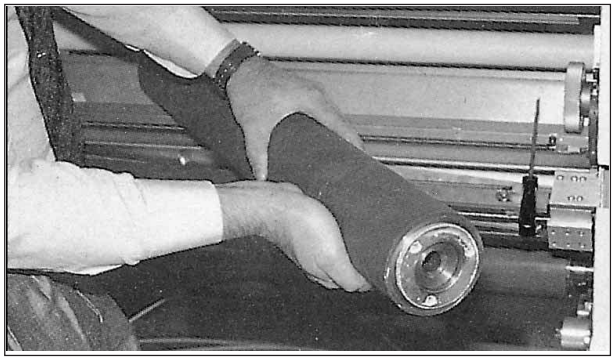


5. Hold the roll carefully to prevent it from falling, move away the right flange and push the roll to the left.

6. Still holding the roll firmly, move away the left flange, too.



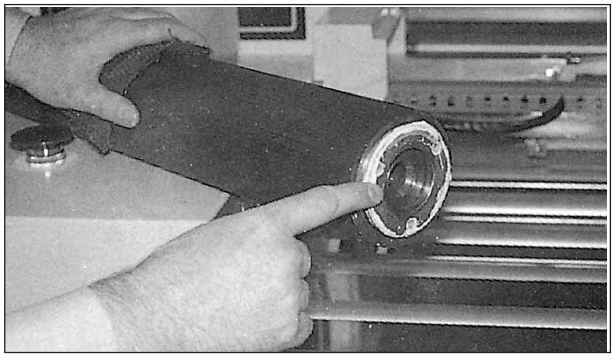
7. ***Remove the roll taking great care not to drop it on the IR lamp housed inside the aluminium cover.***



8. Insert the new roll, applying some anti-gripping silicone paste on both extremities in order to facilitate its successive removal.

NOTE

Check the correct positioning of the thermocouple.



9. Repeat the operations from point 4 onwards for the other roll.

NOTE

At the end of the replacement procedure, check the correct positioning of the thermocouples.

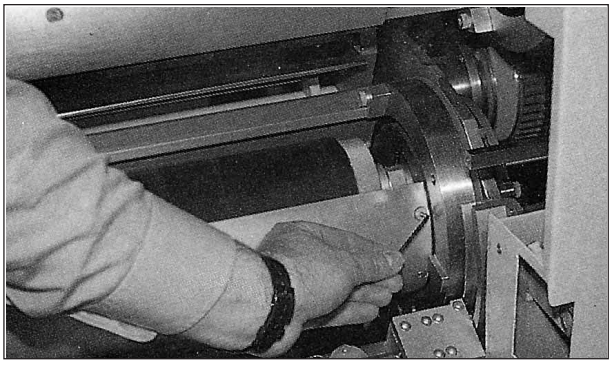
6.1.C.2 REPLACEMENT OF THE IR LAMPS

WARNING

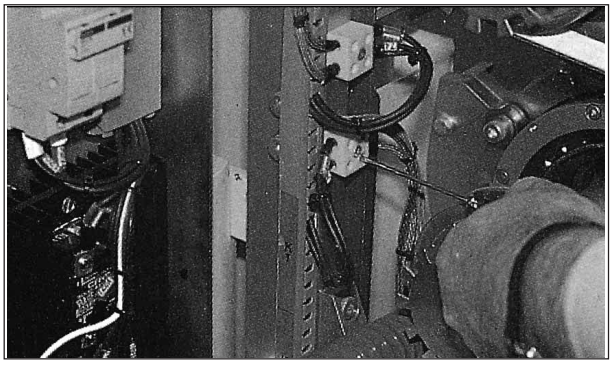
Replacement of the IR lamps should only be carried out by specially trained personnel using original spare parts which comply with the originals as regards materials, design and electrical features.

Replace the lamps as follows:

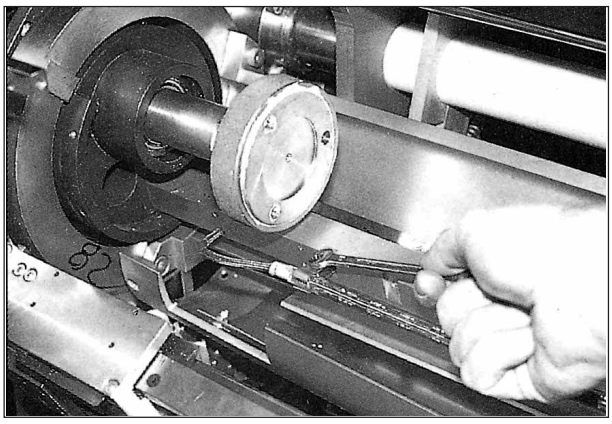
1. Switch off and disconnect the laminator, then wait until the heated parts have cooled down.
2. Take out the removable unit and remove the upper and lower fixed units (not the rotating ones), by simply removing the screws (3 on the right and 3 on the left).



3. Disconnect the two lamps from the electric terminals positioned on the right side and the rear left side of the machine.



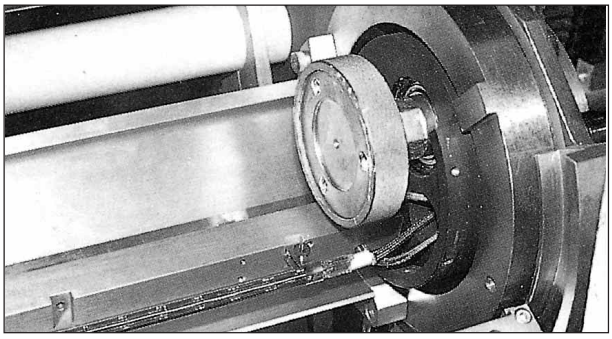
4. Slacken the lamp-holding clamp and take it out.



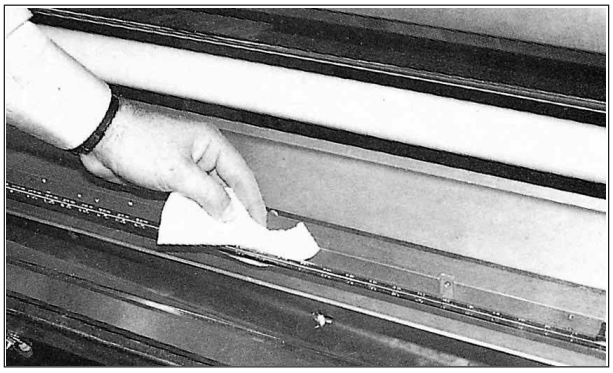
5. Insert the new lamp, connect it to the terminals and secure it with its clamps.

WARNING

- ***Do not block the lamp on both sides, since this would hinder the natural expansion of the glass due to thermal dilatation.***
- ***Direct the radiating element towards the centre of the roll.***



6. Once the assembly has been completed, wipe the lamp with a cloth dampened with alcohol.
7. Repeat the procedure for the other lamp.



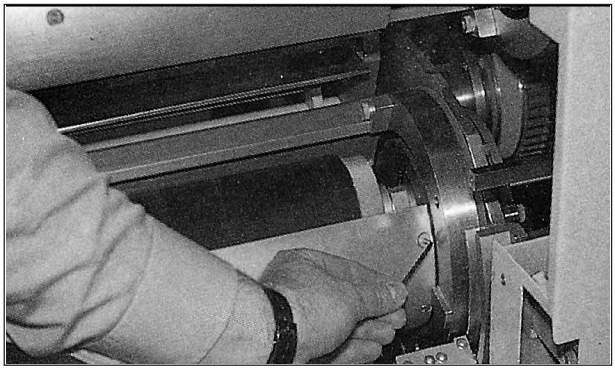
6.1.C.3 REPLACEMENT OF THE TACKING BARS

WARNING

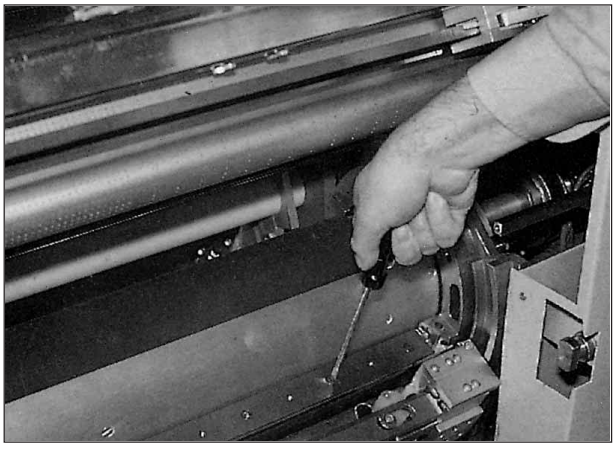
Replacement of the tacking bars should only be carried out by specially trained personnel using original spare parts which comply with the originals as regards materials, design and electrical features.

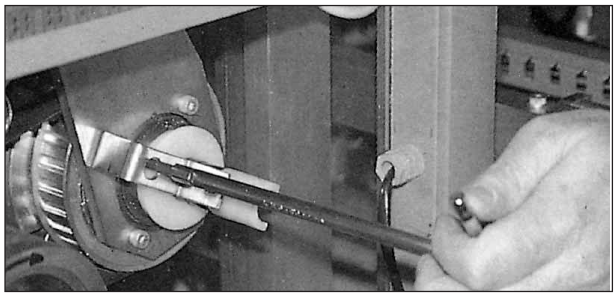
Replace the tacking bars as follows:

1. Switch off and disconnect the laminator, and wait for the heated parts to cool down.
2. Take out the removable unit.
3. Remove the secondary vacuum section.

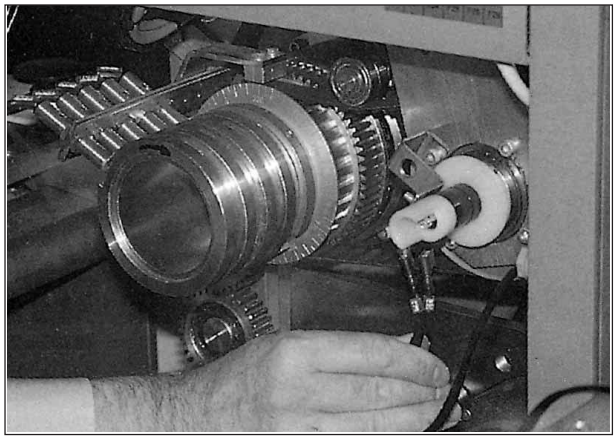


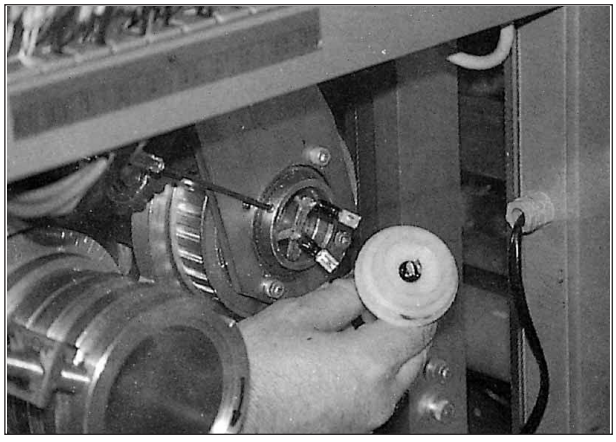
4. Remove the counterblade and place it where it would not suffer any damage.



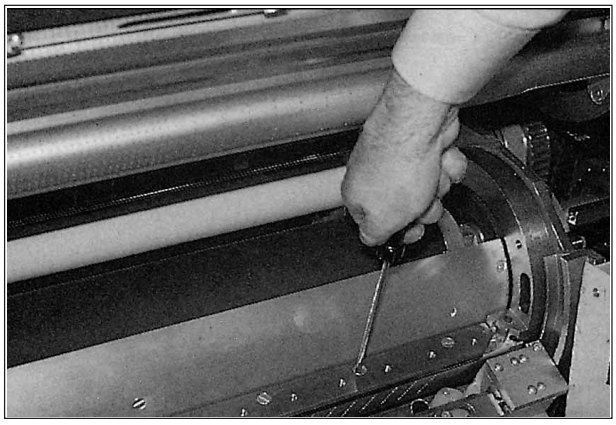


5. Disconnect the tacking bar cables from the rotating MERCOTAC connector, located on the left side of the machine, and connect them to a free cable which can be used to pull back the cables of the new tacking bar.





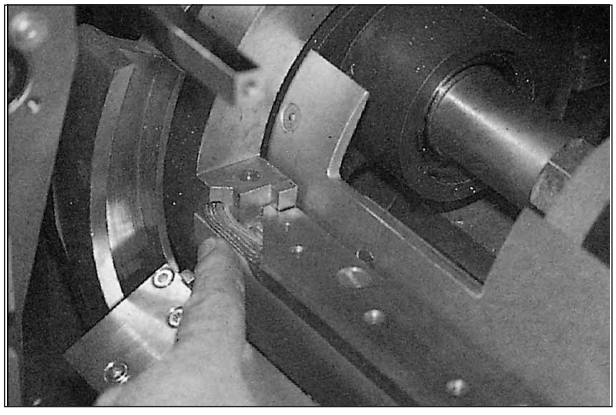
6. Unscrew and then remove the tacking bar from the main vacuum sector.



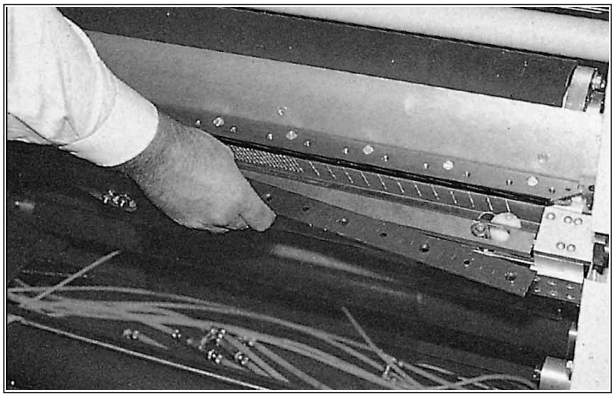
7. Insert the new bar, pass the cables through the holes placed on the left side of the machine and connect them to the MERCOTAC.

WARNING

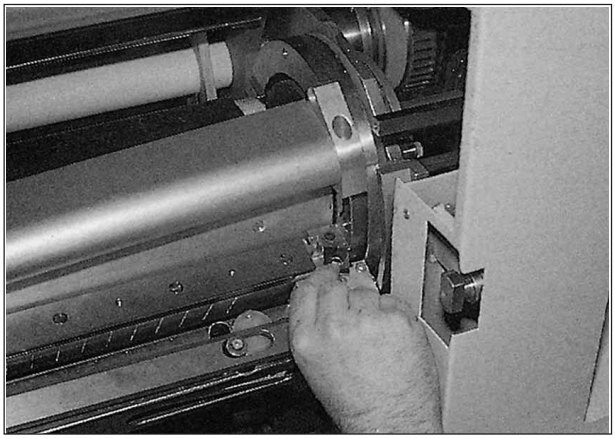
Take care that the pads are mounted facing the right direction (the thicker end of the screws towards the outside).



8. Tighten up all the screws that block the bars, then position and block the counterblades.



9. Reposition and block the secondary vacuum sector, inserting the correcting shims for the rear edge, if existing.



10. Repeat the operations described from point 3. onwards for the other tacking bar.

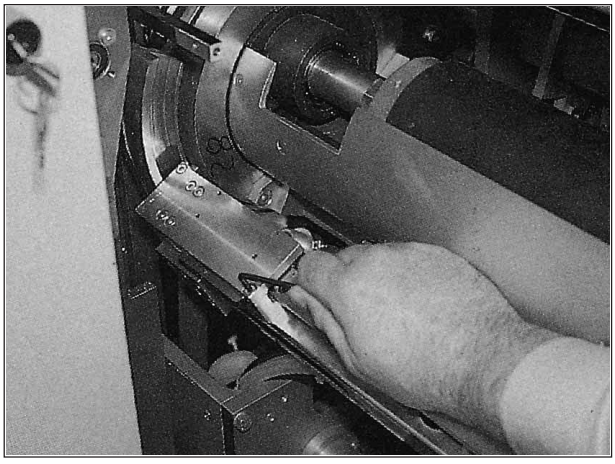
6.1.C.4 REPLACEMENT OF THE MOVABLE BLADES

WARNING

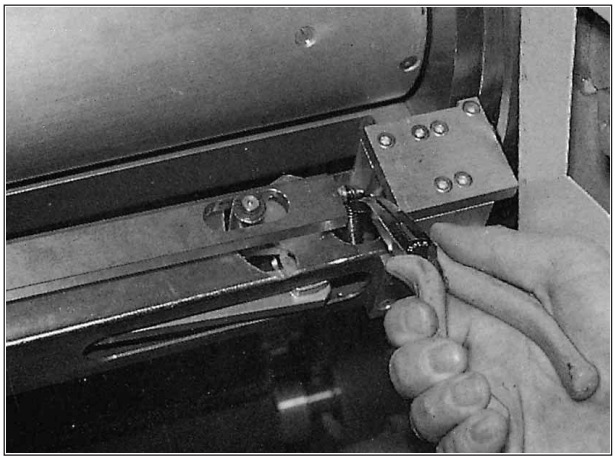
Replacement of the movable blades should only be carried out by specially trained personnel using original spare parts which comply with the originals as regards both materials and design.

Replace the movable blades as follows:

1. Switch off and disconnect the laminator, then wait until the heated parts have cooled down.
2. Take out the removable unit.
3. After loosening all the screws, remove the left blade-guiding flange for the lower blade, and the right flange for the upper blade.



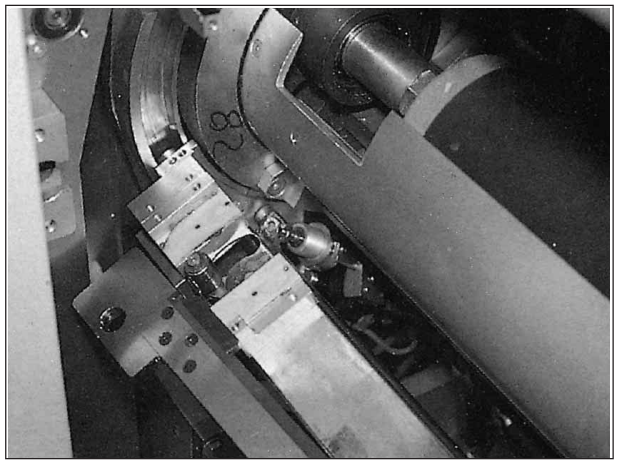
4. Relieve the blade-tensing spring, situated at the other extremity, and remove the movable blade.



5. Insert the new blade, block the spring and reposition all the parts previously removed.

NOTE

Lightly lubricate the joints and all the parts that make contact.



WARNING

Take care not to damage the edge of the blades during the entire disassembly and reassembly operation.

6.1.C.5 REPLACEMENT OF THE COUNTERBLADES

The counterblades can be rotated on their own axes and then turned over, in order to use all four cutting edges of the tool.

In order to rotate, turn over or replace the counterblade, it is sufficient to proceed as for “REPLACEMENT OF THE TAKING BARS” from point 1. to 4. and from 8. to 9.

WARNING

Replacement of the counterblades, too, should only be carried out by specially trained personnel using materials which comply with the originals as regards both features and design.

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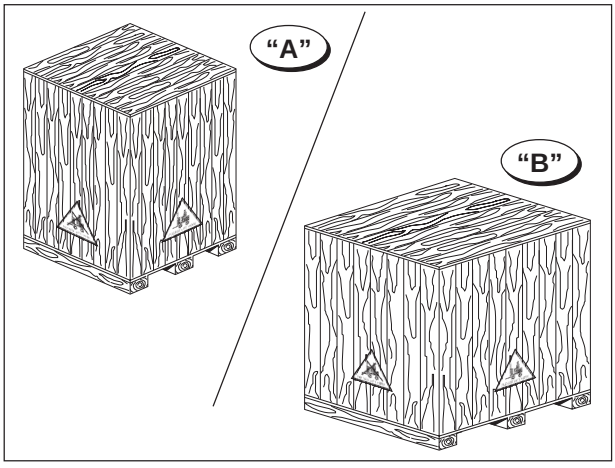
SHIPLEY
A ROHM AND HAAS COMPANY

-- PACKING AND SHIPPING

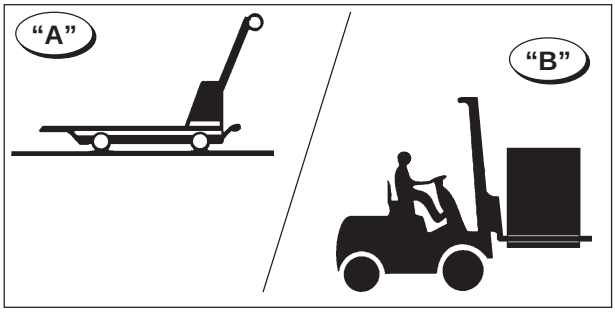
The machine is normally shipped in wooden crates, specially sized to suit the equipment in question.
The wooden crates are basically of two types (as illustrated in the figure below).
The first type (**"A"**) has a square base while the other (**"B"**) is more rectangular in shape.



TYPES OF PACKING CRATE

-- LIFTING THE CRATE

The crate must be handled with extreme care in order to prevent damage to the machine inside.
It can be lifted by using a:
A- Transpallet;
B- Lift truck.



SUITABLE LIFTING MEANS

NOTE

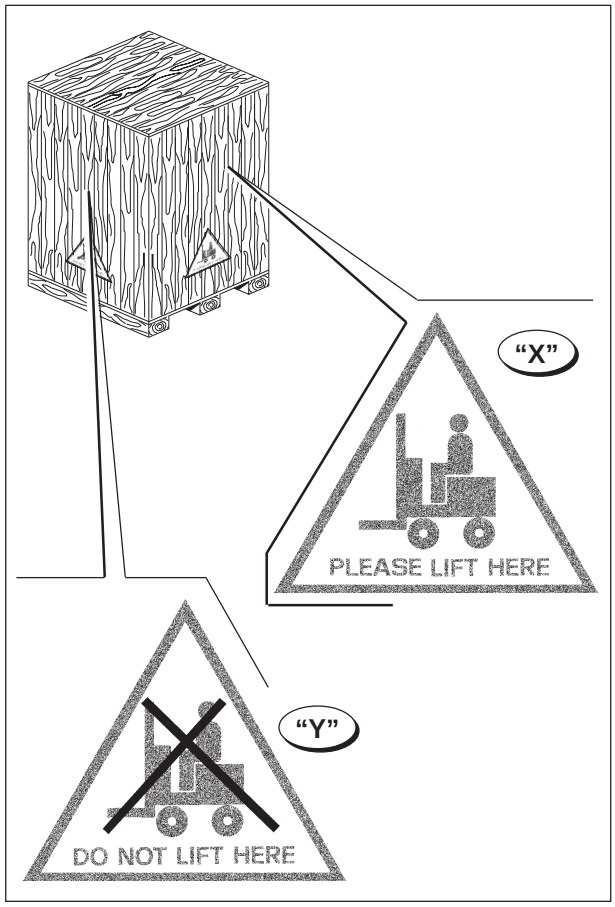
In both cases, always check that the utilized lifting means and accessories (ropes, chains, lifting forks, etc.) are sized according to the overall weight of the crate as stamped on the same.

The machine weight is also indicated on the relative page of this instruction manual where all the technical characteristics are listed.

ATTENTION

The crate lifting and handling operations must only be carried out by specialized personnel authorized to use the above mentioned equipment.

Check the data plates and/or indications on the crate before it is lifted.
There are indications on the sides (**"X"** and **"Y"**) marking the places where the lifting forks should be inserted.



INDICATIONS ON THE CRATE

ATTENTION

- ***Never stand near the machine while it is being lifted.***
- ***SHIPLEY declines all responsibility for any damage to persons or property caused by failure to comply with the instructions given in this manual and specified by the current Safety Provisions concerning lifting and handling of materials inside and outside factories.***

-- LIFTING THE MACHINE

After having placed the crate in the position where the machine is to be installed, unpack the contents with extreme care.

ATTENTION

Should the Customer note any defects, deformation or damage caused by transport on the crate and/or machine, he should immediately inform the haulage contractor of the matter both by phone (if the contractor is no longer present) and by Registered Letter with return receipt attached. SHIPLEY should also be notified in merit.

The machine must only be lifted by transpallet or lift truck, after having checked that the chosen lifting means is suited to the weight of the machine itself (see the indications on the technical characteristics page of this manual).
Check that the lift forks correctly hold the bottom of the machine before it is lifted and that the machine weight is adequately balanced.

DANGER

Never stand near the machine while it is being lifted.

ATTENTION

- ***The machine lifting and handling operations must only be carried out by specialized personnel authorized to use the above mentioned equipment.***
- ***SHIPLEY declines all responsibility for any damage to persons or property caused by failure to comply with the instructions given in this manual and specified by the current Safety Provisions concerning lifting and handling of materials inside and outside factories.***

-- DEMOLISHING THE MACHINE

Proceed in the following way if the machine must be demolished for any reason (owing to age, if it can no longer be repaired, etc.):

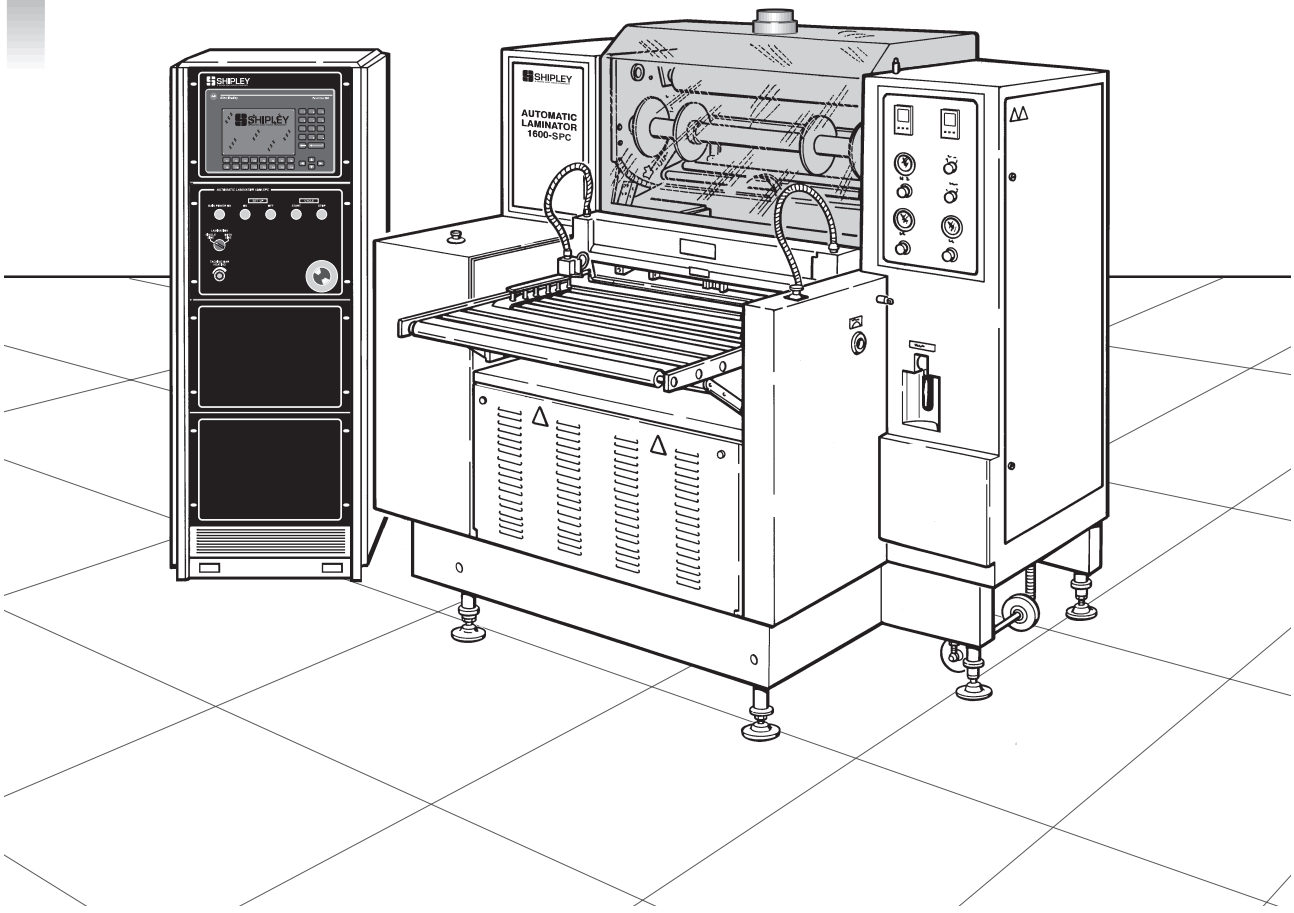
- Disconnect the machine by carrying out the operations described in the "**operations**" and "**maintenance**" sections of this publication in reverse.
- Dismantle all possible parts of the machine (casing, lamps, guards, handles, chains, motors, etc.), dividing them according to their different nature (eg.: pipes, rubber components, lubricants, solvents, lacquering products, aluminium, ferrous material, copper, glass, etc.).
- Before the machine is scrapped, inform the authorities in charge of these matters in writing, in compliance with the provisions in force in the individual countries.
- After having received authorization from the above mentioned organizations, dispose of the components as prescribed by the current standards in merit.

ATTENTION

Any irregularity committed by the Customer before, during or after dismantling and scrapping the machine components, or in interpreting and applying the current provisions in force, shall be the exclusive responsibility of the Customer himself.

SHIPLEY
A ROHM AND HAAS COMPANY

AUTOMATIC LAMINATOR 1600-SPC



Index

Spare parts index

How to order spare parts

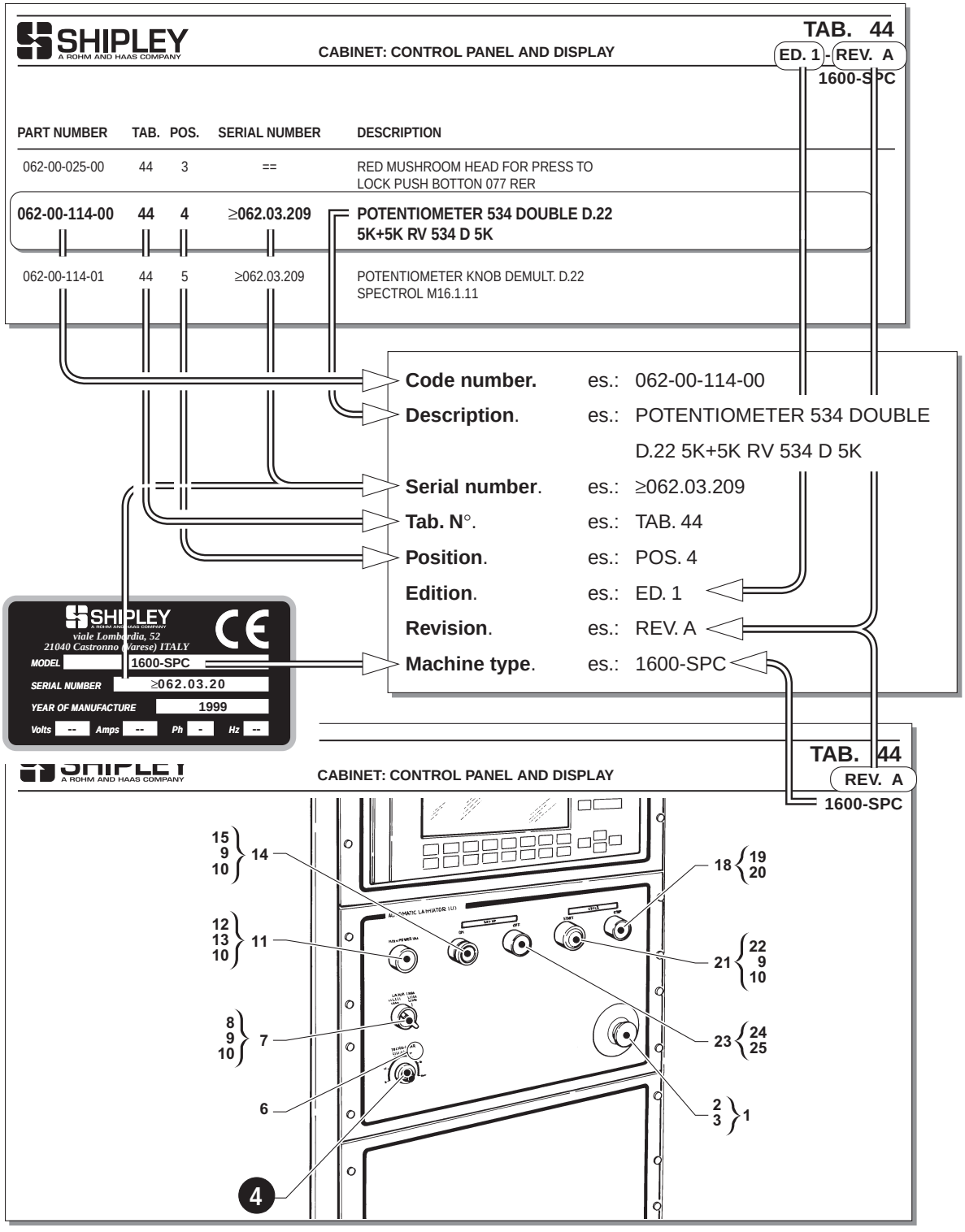
SPARE PARTS CATALOGUE

Ed. 05/01

Home page

EXIT

To avoid misunderstandings and delivery errors, you are strongly advised to clearly exactly state the following information when ordering SPARE PARTS:


SHIPLEY A ROHM AND HAAS COMPANY
CABINET: CONTROL PANEL AND DISPLAY
TAB. 44
ED. 1 - REV. A
1600-SPC
PART NUMBER TAB. POS. SERIAL NUMBER DESCRIPTION
062-00-025-00 44 3 == RED MUSHROOM HEAD FOR PRESS TO LOCK PUSH BOTTON 077 RER
062-00-114-00 44 4 ≥062.03.209 POTENTIOMETER 534 DOUBLE D.22 5K+5K RV 534 D 5K
062-00-114-01 44 5 ≥062.03.209 POTENTIOMETER KNOB DEMULT. D.22 SPECTROL M16.1.11
Code number. es.: 062-00-114-00
Description. es.: POTENTIOMETER 534 DOUBLE D.22 5K+5K RV 534 D 5K
Serial number. es.: ≥062.03.209
Tab. N°. es.: TAB. 44
Position. es.: POS. 4
Edition. es.: ED. 1
Revision. es.: REV. A
Machine type. es.: 1600-SPC
SHIPLEY
viale Lombardia, 52
21040 Castronno (Varese) ITALY
MODEL 1600-SPC
SERIAL NUMBER ≥062.03.20
YEAR OF MANUFACTURE 1999
Volts -- Amps -- Ph - Hz --
TAB. 44
REV. A
1600-SPC
CABINET: CONTROL PANEL AND DISPLAY
15 9 10 14
12 13 10 11
8 9 10 7
6
4
18 19 20
21 22 9 10
23 24 25
2 3 1

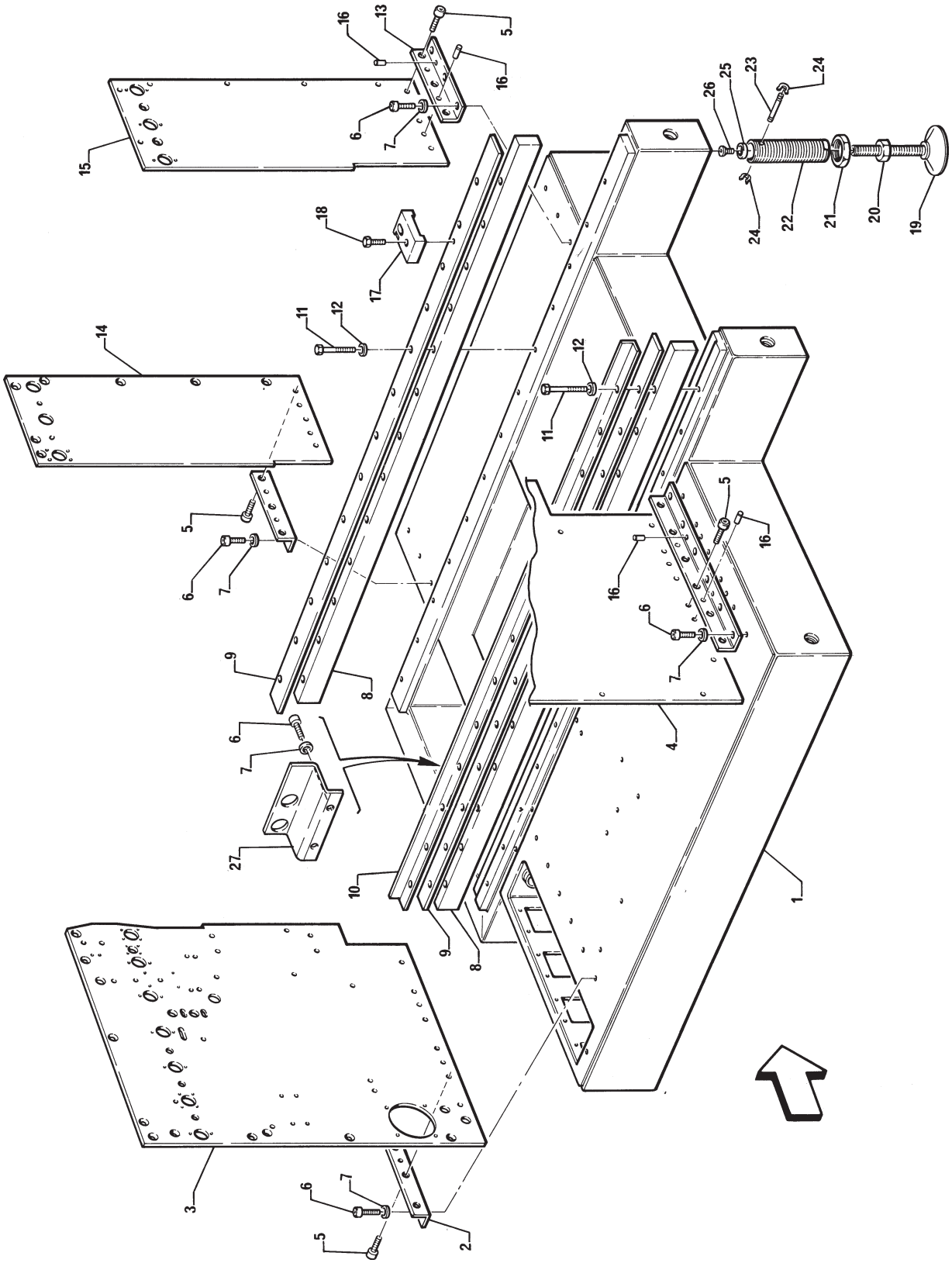
The number listed in the "**SERIAL NUMBER**" column identifies the serial number of the machine where the described part is installed.
If no number is listed in this column, it means that the described part is installeld on the machine as original fitting.
Symbols preceeding the serial number have to be as follows:

≤ : the described part is installed on machines with serial number up to that listed (inclusive)

≥ : the described part is installed on machines with the listed serial number (inclusive) onwards.

TAB. 1 - MAIN BODY: FIXED STRUCTURE
TAB. 2 - MAIN BODY: MOVABLE STRUCTURE 1st PART
TAB. 3 - COVERS: 1st PART
TAB. 4 - COVERS: 2nd PART
TAB. 5 - FOLDING INPUT ROLLER
TAB. 6 - INPUT ROLLER: 1st PART
TAB. 7 - INPUT ROLLER: 2nd PART
TAB. 8 - CENTERING DEVICE: 1st PART
TAB. 9 - CENTERING DEVICE: 2nd PART
TAB. 10 - FRONT EDGE REGISTER - INSERTION ROLL
TAB. 11 - INSERTION ROLL GROUP 1st PART
TAB. 12 - INSERTION ROLL GROUP 2nd PART
TAB. 13 - LEVERAGE GROUP
TAB. 14 - LEVERAGE GROUP: RACEWAYS
TAB. 15 - LAMINATION GROUPS LEVERAGES
TAB. 16 - CENTRAL UNIT ROLLS
TAB. 17 - PANEL SUPPORT NEEDLE-ROLLS
TAB. 18 - GEAR MOTOR SECTION
TAB. 19 - TENSIONERS-PRIMARY CONTROL SECTION
TAB. 20 - UPPER SHAFT CONTROL
TAB. 21 - UPPER LAMINATION GROUP: 1st PART
TAB. 22 - UPPER LAMINATION GROUP: 2nd PART
TAB. 23 - LOWER CONTROL SHAFT
TAB. 24 - LOWER LAMINATION GROUP: 1st PART
TAB. 25 - LOWER LAMINATION GROUP: 2nd PART
TAB. 26 - CUTTING DEVICE: 1st PART
TAB. 27 - CUTTING DEVICE: 2nd PART
TAB. 28 - CUTTING DEVICE: 3rd PART
TAB. 29 - INDEX GROUP
TAB. 30 - FILM COIL SUPPORT SHAFT
TAB. 31 - ENRICHMENT (POLYETHYLENE RECOVERY ROLLER)
TAB. 32 - FILM TENSIONING GROUP
TAB. 33 - LATERAL CUTTING DEVICE WITH FILM WASTE RECOVERY
TAB. 34 - OUTPUT ROLLER
TAB. 35 - PUMP UNIT - AIR FILTER
TAB. 36 - VACUUM SUCTION GROUP
TAB. 37 - PNEUMATIC DETAILS: 1st PART
TAB. 38 - PNEUMATIC DETAILS: 2nd PART
TAB. 39 - REFLECTING BAR GROUP
TAB. 40 - ANTISTATIC BAR UNIT
TAB. 41 - MACHINE ELECTRICAL COMPONENTS: 1st PART
TAB. 41a - MACHINE ELECTRICAL COMPONENTS: 2nd PART
TAB. 42 - MACHINE ELECTRICAL COMPONENTS: 3rd PART
TAB. 43 - MACHINE ELECTRICAL COMPONENTS: 4th PART
TAB. 44 - CABINET: CONTROL PANEL AND DISPLAY
TAB. 45 - CABINET: MAIN PANEL AND PLC 1st PART
TAB. 46 - CABINET: MAIN PANEL AND PLC 2nd PART
TAB. 47 - CABINET: LATERAL PANELS
TAB. 48 - MISCELLANEOUS ELECTRICAL PART
== - NUMERICAL INDEX

PART NUMBER	TAB.	POS.	SERIAL NUMBER	DESCRIPTION
062-02-809-00	1	1	==	BASE 0229002001
062-02-111-00	1	2	==	SHOULDER FIXING BRACKET 017100003
062-02-112-00	1	3	==	LEFT SHOULDER 017100001
062-02-113-00	1	4	==	RIGHT SHOULDER 017100002
062-02-114-00	1	5	==	SCREW M8 x 16
062-02-115-00	1	6	==	SCREW M6 x 25
062-02-810-00	1	7	==	PLAIN WASHER 6.5/30/4
062-02-117-00	1	8	==	VERTICAL GUIDE 017200048
062-02-118-00	1	9	==	HORIZONTAL GUIDE 017200049
062-02-119-00	1	10	==	FIXED GUIDE 017200050
062-02-120-00	1	11	==	HEX. HEAD SCREW M8 x 85
062-02-121-00	1	12	==	PLAIN WASHER DN8
062-02-122-00	1	13	==	SHOULDER FIXING BRACKET 022200005
062-02-123-00	1	14	==	LEFT SHOULDER 022200002
062-02-124-00	1	15	==	RIGHT SHOULDER 022200001
062-02-804-00	1	16	==	PARALLEL PIN ø5 x 16
062-02-128-00	1	17	==	RETAINER FOR GUIDE 017200058
062-02-129-00	1	18	==	HEX. HEAD SCREW M8 x 45
062-02-127-00	1	19	==	ROBO FOOT TYPE 132/54351
				FIG. 1 - 022900046
062-02-805-00	1	20	==	NUT FOR FOOT 022900045
062-02-806-00	1	21	==	NUT FOR SLEEVE 022900042
062-02-807-00	1	22	==	SLEEVE 022900041
062-02-808-00	1	23	==	STOP 022900043
062-02-062-00	1	24	==	SPRING RING E8
062-02-811-00	1	25	==	WASHER 022900044
062-02-812-00	1	26	==	SCREW M6 x 16
062-02-813-00	1	27	==	FITTING HOLDER 017000016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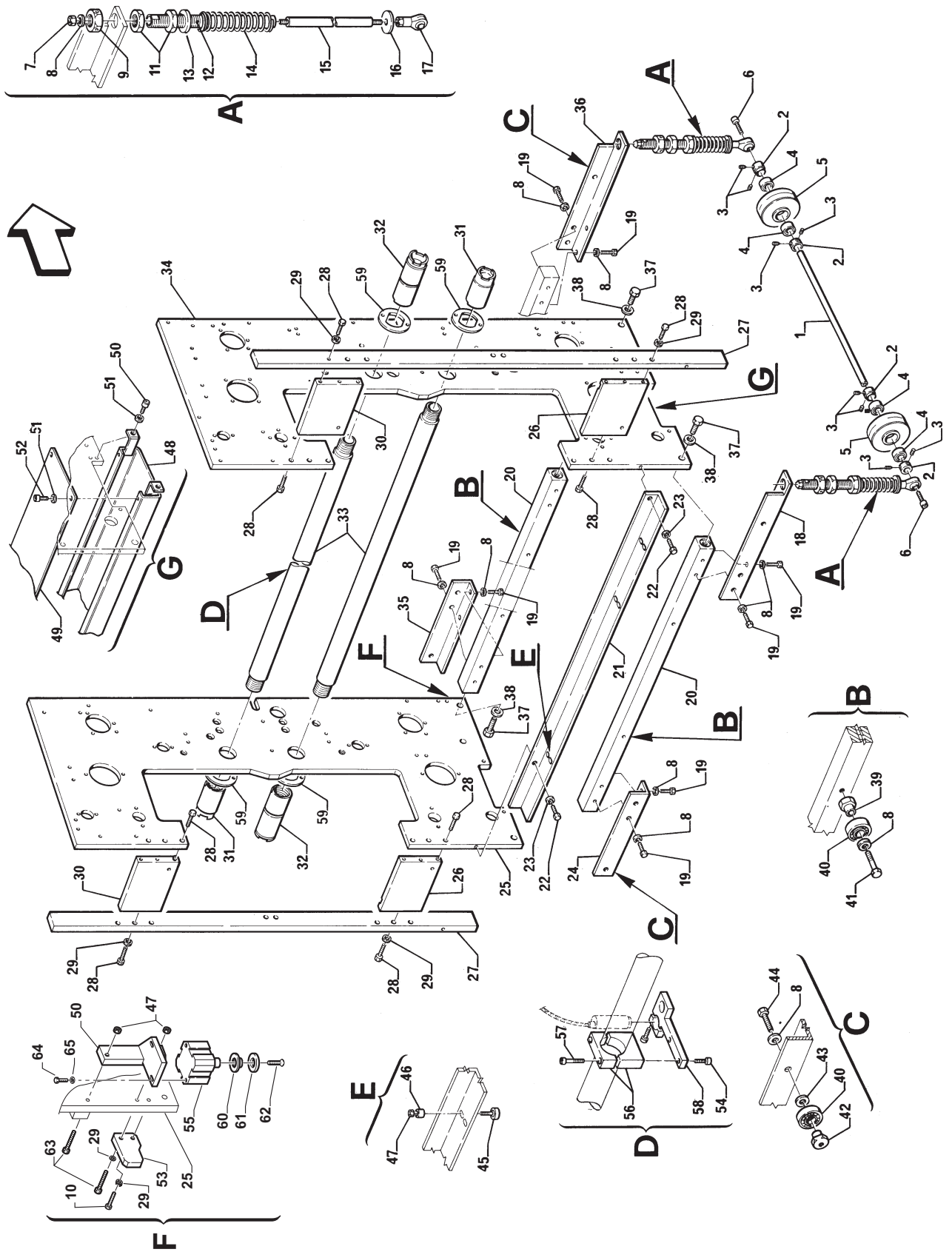
PART NUMBER	TAB.	POS.	SERIAL NUMBER	DESCRIPTION
062-02-130-00	2	1	==	WHEELS SUPPORTING SHAFT 017200038
062-02-131-00	2	2	==	STOP RING 017200042
062-02-132-00	2	3	==	SCREW M6x5
062-02-011-00	2	4	==	BEARING SKF 6003-2RS ø17-35-10
062-02-133-00	2	5	==	WHEEL 017200037
062-02-134-00	2	6	==	SCREW M10x30
062-02-135-00	2	7	==	HEX. NUT M10
062-02-136-00	2	8	==	PLAIN WASHER DN10
062-02-137-00	2	9	==	RING NUT M25x1,5 017200051
062-02-179-00	2	10	==	HEX. HEAD SCREW M8x35
062-02-138-00	2	11	==	RING NUT M25x1,5 017200045
062-02-139-00	2	12	==	JOINT PIECE 017200040
062-02-140-00	2	13	==	WASHER 25,5x40 - THICK. 2 017200047
062-02-141-00	2	14	==	SPRING 017200041
062-02-142-00	2	15	==	ROD 017200039
062-02-143-00	2	16	==	WASHER ø 10,5x40 THICK. 4 017200043
062-02-012-00	2	17	==	FEMALE THREADED BALL JOINT M10
062-02-145-00	2	18	==	RIGHT ANGULAR BRACKET 017200031
062-02-146-00	2	19	==	HEX. HEAD SCREW M10x22
062-02-147-00	2	20	==	ROD WHEELS SUPPORTING 017200029
062-02-148-00	2	21	==	GUIDE 017200044
062-02-149-00	2	22	==	HEX. HEAD SCREW M8x22
062-02-150-00	2	23	==	PLAIN WASHER DN8x14
062-02-151-00	2	24	==	RIGHT ANGULAR BRACKET 017200033
062-02-152-00	2	25	==	LEFT SHOULDER 017200002
062-02-153-00	2	26	==	LOWER SPACER 017200053
062-02-154-00	2	27	==	VERTICAL ROD 017200005
062-02-155-00	2	28	==	HEX. HEAD SCREW M8x40
062-02-121-00	2	29	==	PLAIN WASHER DN8
062-02-156-00	2	30	==	UPPER SPACER 017200006
062-02-157-00	2	31	==	SLEEVE 017200003
062-02-158-00	2	32	==	SLEEVE 017200004
062-02-159-00	2	33	==	ROD SPACER 017200056
062-02-160-00	2	34	==	RIGHT SHOULDER 017200001
062-02-161-00	2	35	==	LEFT ANGULAR BRACKET 017200032
062-02-162-00	2	36	==	LEFT ANGULAR BRACKET 017200030
062-02-163-00	2	37	==	HEX. HEAD SCREW M12x30
062-02-164-00	2	38	==	PLAIN WASHER DN13
062-02-165-00	2	39	==	ECCENTRIC SLEEVE 017200035
062-02-009-00	2	40	==	BEARING 6303-2RS1 ø 17-47-41
062-02-166-00	2	41	==	HEX. HEAD SCREW M10x45
062-02-167-00	2	42	==	ECCENTRIC SLEEVE 017200034
062-02-168-00	2	43	==	SPACER 017200036
062-02-169-00	2	44	==	HEX. HEAD SCREW M10x30
062-02-170-00	2	45	==	PIN
062-02-171-00	2	46	==	SPACER 017200046
062-02-172-00	2	47	==	HEX. NUT. M8
062-02-173-00	2	48	==	RACEWAY 022900047
062-02-174-00	2	49	==	COVER 022900048
062-12-212-00	2	50	==	CYLINDER SUPPORT 017200070
062-02-176-00	2	51	==	PLAIN WASHER DN5
062-02-177-00	2	52	==	SCREW M5x10
062-02-178-00	2	53	==	RETAINER FOR SHOULDER 017200059
062-02-250-00	2	54	==	SCREW M6x20
062-01-080-00	2	55	==	CYLINDER PNEUMAX TYPE 1502-31-10
062-02-743-00	2	56	==	CONNECTION FOR PHOTOCELL SUPPORT 017200061
062-02-206-00	2	57	==	SCREW M6x35
062-02-744-01	2	58	==	PHOTOCELL AND IR SENSOR SUPPORT 017201062
062-12-021-00	2	59	==	FLANGE 017600033
062-12-208-00	2	60	==	RUBBER WASHER SUPPORT 017200074
062-12-113-00	2	61	==	RUBBER WASHER 017200071
062-12-209-00	2	62	==	SCREW M6x12
062-12-210-00	2	63	==	SCREW M8x50
062-12-211-00	2	64	==	SREW M6x16
062-02-116-00	2	65	==	PLAIN WASHER DN6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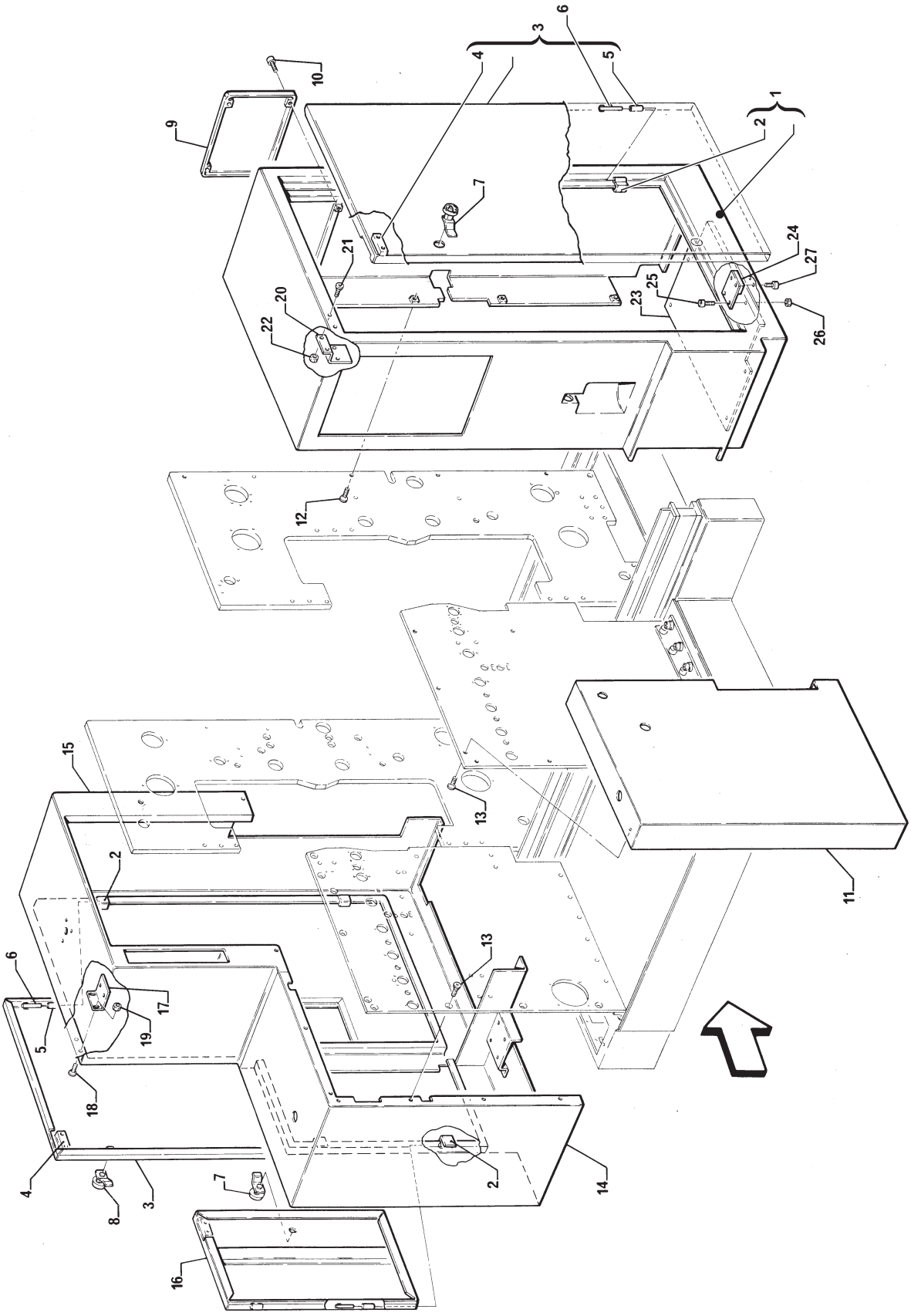
PART NUMBER	TAB.	POS.	SERIAL NUMBER	DESCRIPTION
062-02-780-00	3	1	==	RIGHT CENTRAL COVER 022900005
062-02-780-01	3	2	==	SPECIAL HINGE 022900006
062-02-781-00	3	3	==	SPECIAL DOOR RIGHT-LEFT 022900013
062-02-781-01	3	4	==	BLOCK 022900014
062-02-781-02	3	5	==	SLEEVE FOR HINGE 022900015
062-02-782-00	3	6	==	PIN FOR HINGE 022900016
062-02-758-00	3	7	==	CCW LOCK TYPE 440F
062-02-757-00	3	8	==	CW LOCK TYPE 440F
062-02-783-00	3	9	==	ELECTROVALVE BOX COVER 022900023
062-02-637-00	3	10	==	SCREW M4x12
062-02-784-00	3	11	==	RIGHT COVER - INPUT ROLLER 02290004
062-02-313-00	3	12	==	SCREW M5x20
062-02-566-00	3	13	==	SCREW M5x16
062-02-785-00	3	14	==	INPUT ROLLER COVER 022900018
062-02-786-00	3	15	==	LEFT CENTRAL COVER 022900019
062-02-787-00	3	16	==	LEFT COVER DOOR 022900022
062-02-834-00	3	17	==	SWITCH HOLDER 020900005
062-02-245-00	3	18	==	SCREW M4x10
062-12-213-00	3	19	==	HEX. NUT M5
062-02-835-00	3	20	==	SWITCH HOLDER 022900053
062-02-287-00	3	21	==	SCREW M5x10
062-12-213-00	3	22	==	HEX. NUT. M5
062-02-836-00	3	23	==	RACEWAY SUPPORT 017000010
062-02-837-00	3	24	==	RIGHT CASING STOP 022900052
062-02-327-00	3	25	==	SCREW M6x10
062-02-246-00	3	26	==	HEX. NUT M6
062-02-177-00	3	27	==	SCREW M5x10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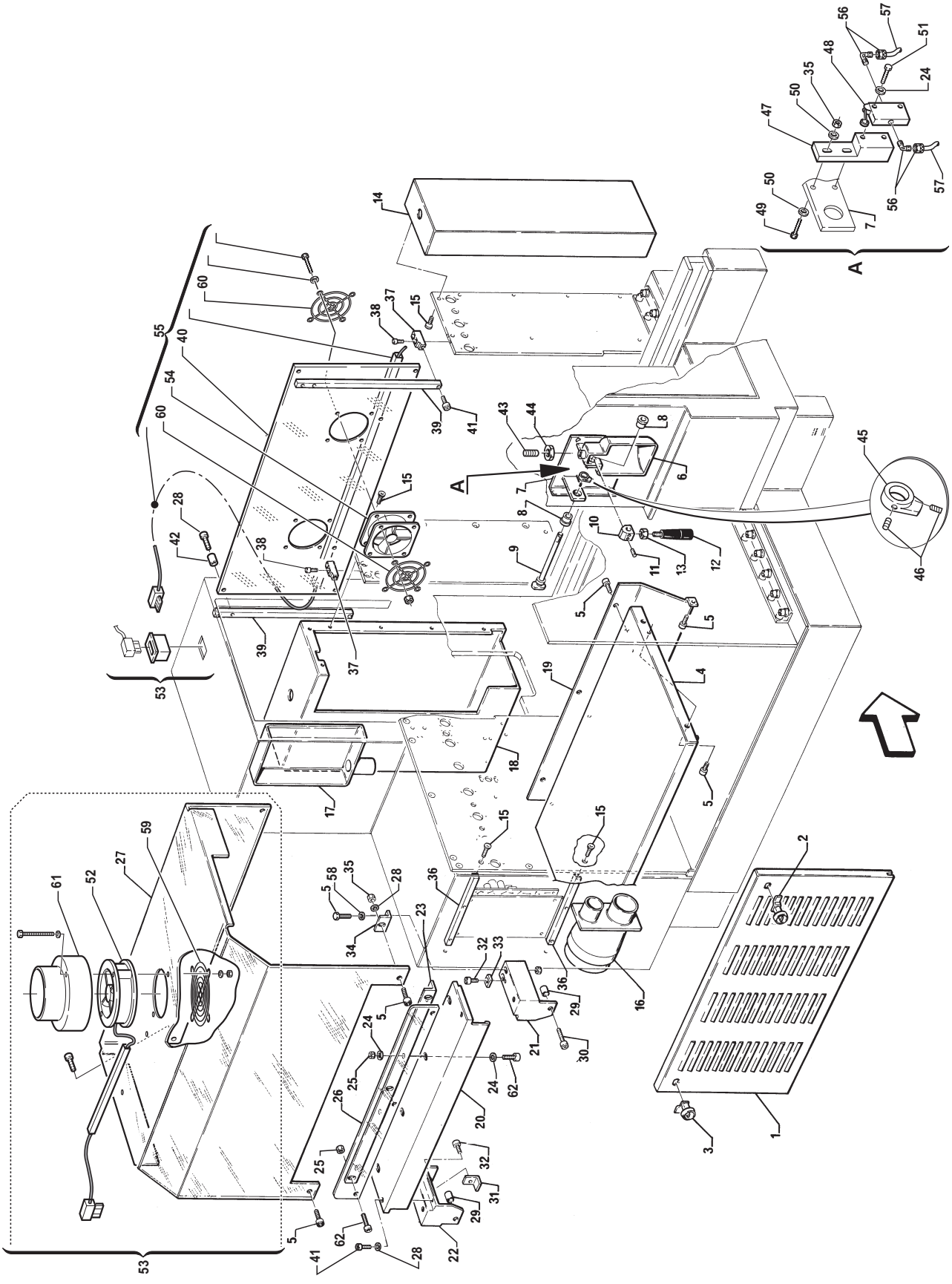
PART NUMBER	TAB.	POS.	SERIAL NUMBER	DESCRIPTION
062-02-756-00	4	1	==	FRONT CLOSING DOOR 022900003
062-02-757-00	4	2	==	CW LOCK TYPE 440F
062-02-758-00	4	3	==	CWW LOCK TYPE 440F
062-02-759-00	4	4	==	UPPER PANEL 02290002
062-02-327-00	4	5	==	SCREW M6x10
062-02-760-00	4	6	==	HANDLE BOX 022900008
062-02-761-00	4	7	==	SUPPORT FOR KNOB 022900007
062-02-762-00	4	8	==	GLISSEC FLANGED BEARING ø 16/22-28 L=12/4
062-02-763-00	4	9	==	ROD JOINING DEVICE 022900011
062-02-764-00	4	10	==	BLOCK FOR KONB 022900012
062-02-765-00	4	11	==	SCREW M8x8
062-02-766-00	4	12	==	FIXED HANDLE TYPE I280/100 P M12x16
062-02-767-00	4	13	==	NUT M12
062-02-768-00	4	14	==	RIGHT COVER - OUTPUT ROLLER 022900017
062-02-566-00	4	15	==	SCREW M5x16
062-02-769-00	4	16	==	EXHAUST PIPE SUPPORT 022900020
062-02-770-00	4	17	==	FUMES EXHAUST BOX 022900021
062-02-771-00	4	18	==	LEFT COVER - OUTPUT ROLLER 022900024
062-02-772-00	4	19	==	VACUUM PUMP COVER 022900025
062-02-773-00	4	20	==	CENTERING MIDDLE COVER 022900027
062-02-774-00	4	21	==	RIGHT FIXED PROTECTION 02290008
062-02-775-00	4	22	==	LEFT FIXED PROTECTION 022901028
062-02-776-00	4	23	==	LEXAN PROTECTION SUPPORT 022900030
062-02-176-00	4	24	==	PLAIN WASHER DN5
062-12-213-00	4	25	==	HEX. NUT M5
062-02-777-00	4	26	==	LEXAN PROTECTION 022900031
062-02-778-00	4	27	==	UPPER COVERING 022900037
062-02-176-00	4	28	==	PLAIN WASHER DN5
062-02-838-00	4	29	==	SPACER 022900035
062-02-233-00	4	30	==	SCREW M8x20
062-02-839-00	4	31	==	CASING FIXING PLATE 022900026
062-02-286-00	4	32	==	SCREW M4x6
062-02-840-00	4	33	==	PLATE 022900034
062-02-841-00	4	34	==	UPPER COVER SUPPORT 022900029
062-12-213-00	4	35	==	HEX. NUT M5
062-02-842-00	4	36	==	INSTRUMENT COLUMN 017000004
062-02-843-00	4	37	==	REAR GUARD SUPPORT 022900032
062-02-301-00	4	38	==	SCREW M4x15
062-02-844-00	4	39	==	GUARD SUPPORT 022900033
062-02-845-00	4	40	==	REAR GUARD 022901032
062-02-175-00	4	41	==	SCREW M5x25
062-02-846-00	4	42	==	SPACER 022900050
062-12-215-00	4	43	==	SCREW M16x50
062-02-541-00	4	44	==	HEX. NUT M16
062-12-216-00	4	45	==	CAMME FOR MANUAL VALVE 017200072
062-02-537-00	4	46	==	SCREW M5x10
062-12-217-00	4	47	==	MANUAL VALVE SUPPORT
062-12-218-00	4	48	==	MECHANICAL COMMAND VALVE “BOSCH” TYPE 0820.402.002
062-02-435-00	4	49	==	HEX. HEAD SCREW M5x25
062-02-176-00	4	50	==	WASHER DN5
062-02-514-00	4	51	==	SCREW M4x20
062-12-219-00	4	52	==	MUFFIN FAN (W2S-130-AA03-01)
062-02-778-01	4	53	==	INLET HOOD + FAN KIT 06200459
062-12-220-00	4	54	==	REAR MUFFIN FAN W2S-107-AA01-40
062-12-220-00	4	55	==	PROTECTION + FAN KIT 06200485
062-01-033-00	4	56	==	UNION ELBOW C5 ø 8/6 - G1/4˝COD.2305004
062-01-016-00	4	57	==	FLEXIBLE HOSE ø 8/6
062-02-116-00	4	58	==	PLAIN WASHER DN6
062-12-265-00	4	59	==	SAFETY GUARD EBM 9498-2-4039
062-12-266-00	4	60	==	SAFETY GUARD EBM 9497-2-4039
062-12-267-00	4	61	==	SUCTION PIPE UNION 022900054
062-02-177-00	4	62	==	SCREW M5x10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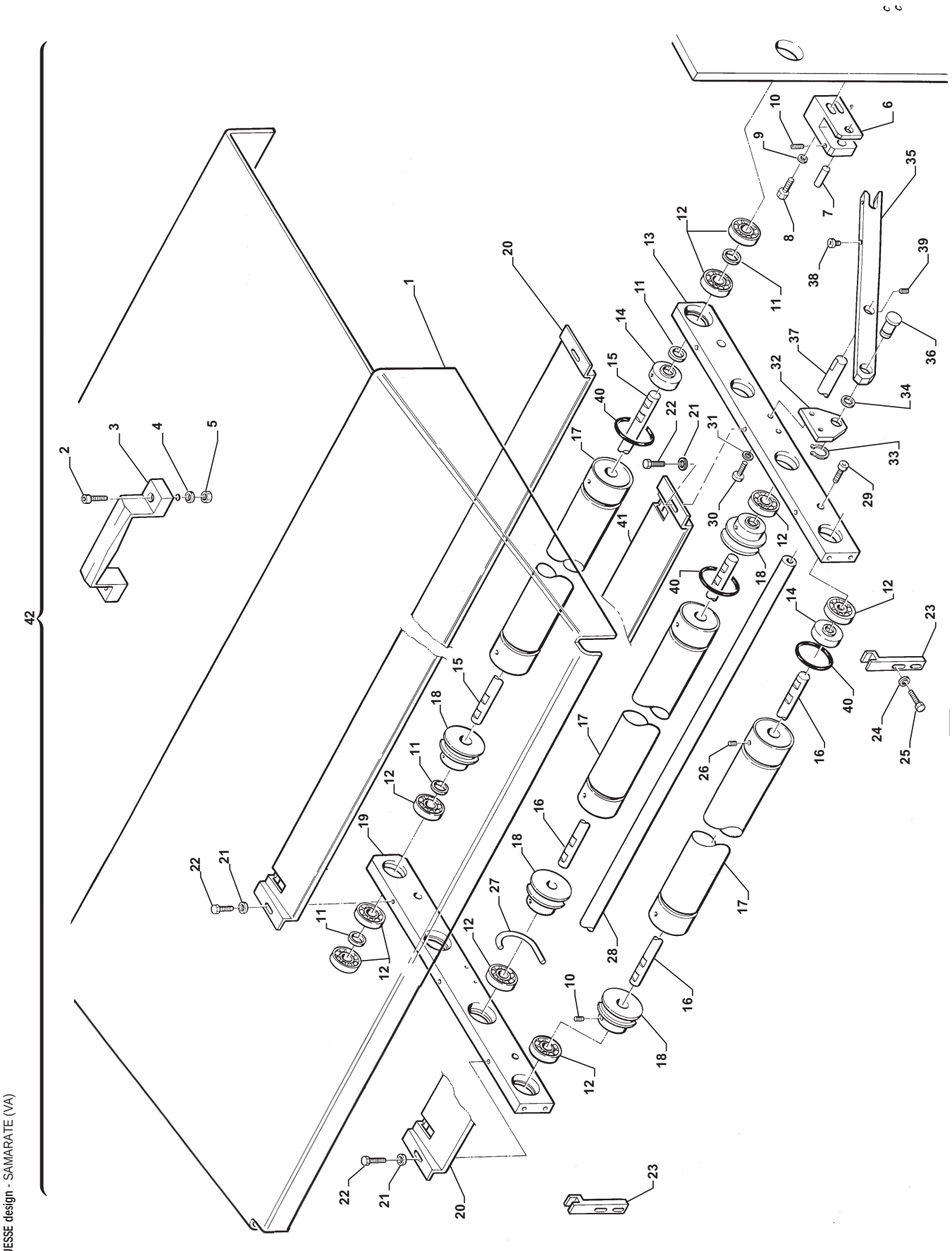
PART NUMBER	TAB.	POS.	SERIAL NUMBER	DESCRIPTION
062-12-229-00	5	1	==	LEXAN PROTECTION 029000015
062-12-230-00	5	2	==	SCREW M8x22
062-12-231-00	5	3	==	HANDLE TYPE M443/150 N
062-12-232-00	5	4	==	WASHER DN 8,4
062-02-172-00	5	5	==	HEX. NUT. M8
062-12-233-00	5	6	==	ROLLER STOP 029000010
062-12-234-00	5	7	==	PIN UNI 1707 8x25H8
062-02-670-00	5	8	==	HEX. HEAD SCREW M6x40
062-12-235-00	5	9	==	WASHER 6,4x12,5
062-02-186-00	5	10	==	SCREW M6x10
062-12-237-00	5	11	==	SPACER 029000005
062-12-018-00	5	12	==	BALL BEARING 6001-2Z ø 12-28-8
062-12-238-00	5	13	==	RIGHT SHOULDER 029000002
062-12-239-00	5	14	==	SPACER 022300011
062-12-240-00	5	15	==	TRANSMISSION SHAFT FOR ROLLER MOVEMENT 029000004
062-12-241-00	5	16	==	ROLLER SHAFT 029000003
062-12-242-00	5	17	==	ROLLER WITH O RING 022303008
062-12-243-00	5	18	==	PULLEY 0223000009
062-12-244-00	5	19	==	LEFT SHOULDER 029000001
062-12-245-00	5	20	==	FRONT AND REAR SUPPORT 029001013
062-12-246-00	5	21	==	WASHER 4,3x9
062-12-225-00	5	22	==	HEX. HEAD SCREW M4x8
062-12-247-00	5	23	==	LEXAN PROTECTION SUPPORT 029000011
062-12-248-00	5	24	==	WASHER 5,3x10
062-02-738-00	5	25	==	HEX. HEAD SCREW M5x16
062-12-249-00	5	26	==	SCREW M6x14
062-12-250-00	5	27	==	THERMOSOLDERING BELT PE-M DN5 SV.PR.303
062-12-251-00	5	28	==	TIE ROD 029000006
062-12-252-00	5	29	==	SCREW M6x16
062-02-670-00	5	30	==	HEX. HEAD SCREW M6x40
062-12-235-00	5	31	==	WASHER 6,4x12,5
062-12-253-00	5	32	==	SHOULDER SUPPORT PLATE 029000007
062-12-162-00	5	33	==	SEEGER RING E10
062-12-254-00	5	34	==	BUSHING TYPE PAP1010P10
062-12-255-00	5	35	==	ROLLER SUPPORT ROD 029000009
062-12-256-00	5	36	==	PIN FOR LEVER 029000008
062-12-257-00	5	37	==	SPACER FOR ROLLER SUPPORT ROD 029000012
062-12-258-00	5	38	==	RUBBER 6mm ART. N° 561-16
062-02-190-00	5	39	==	SCREW M6x6
062-12-259-00	5	40	==	O RING 4131
062-12-260-00	5	41	==	CENTRAL SUPPORT FOR THIN PANEL 029001014
062-12-111-00	5	42	==	INPUT LIFTING ROLLER ASSEMBLED 06200290

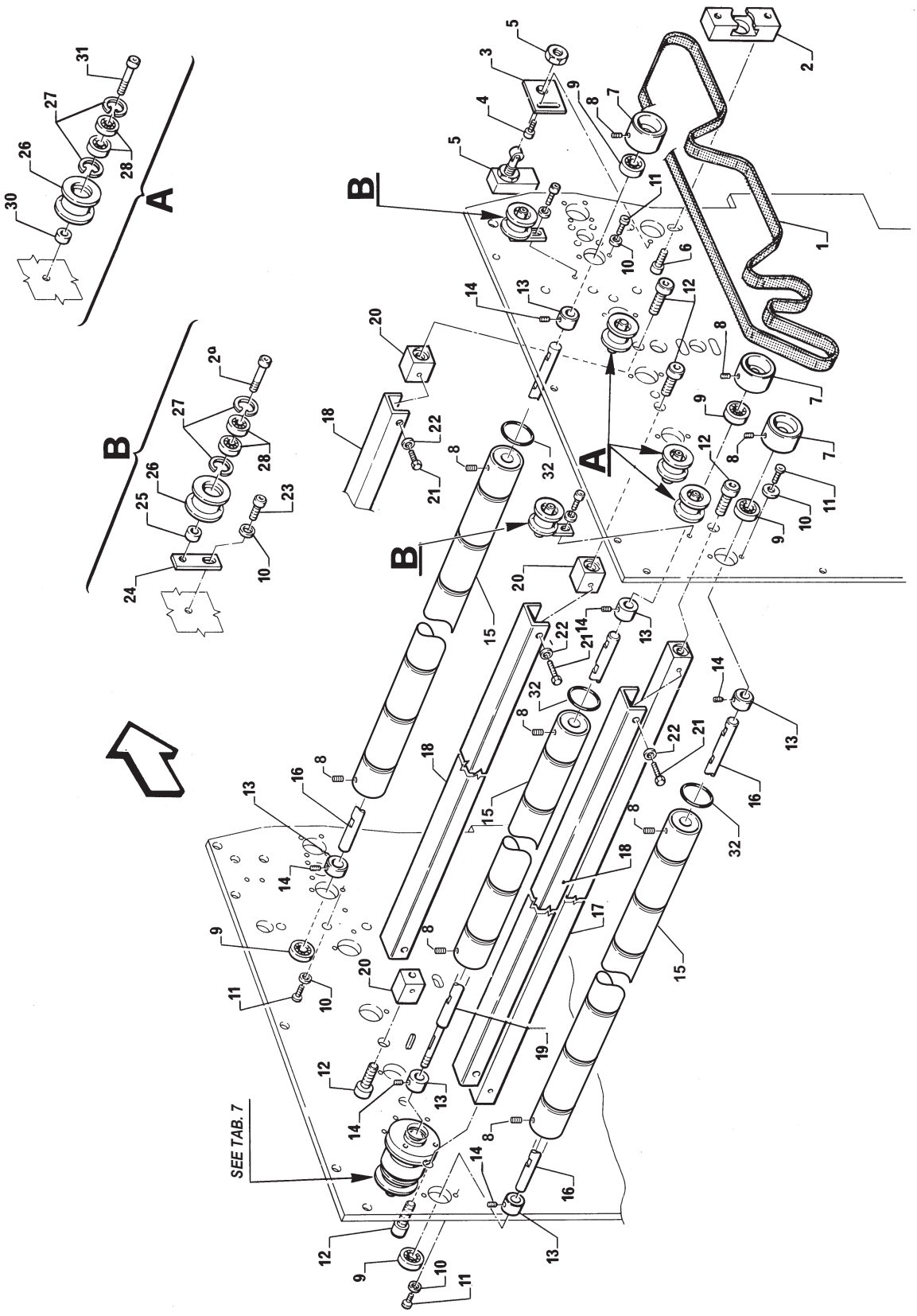
SHIPLEY
A ROHM AND HAAS COMPANY

FOLDING INPUT ROLLER

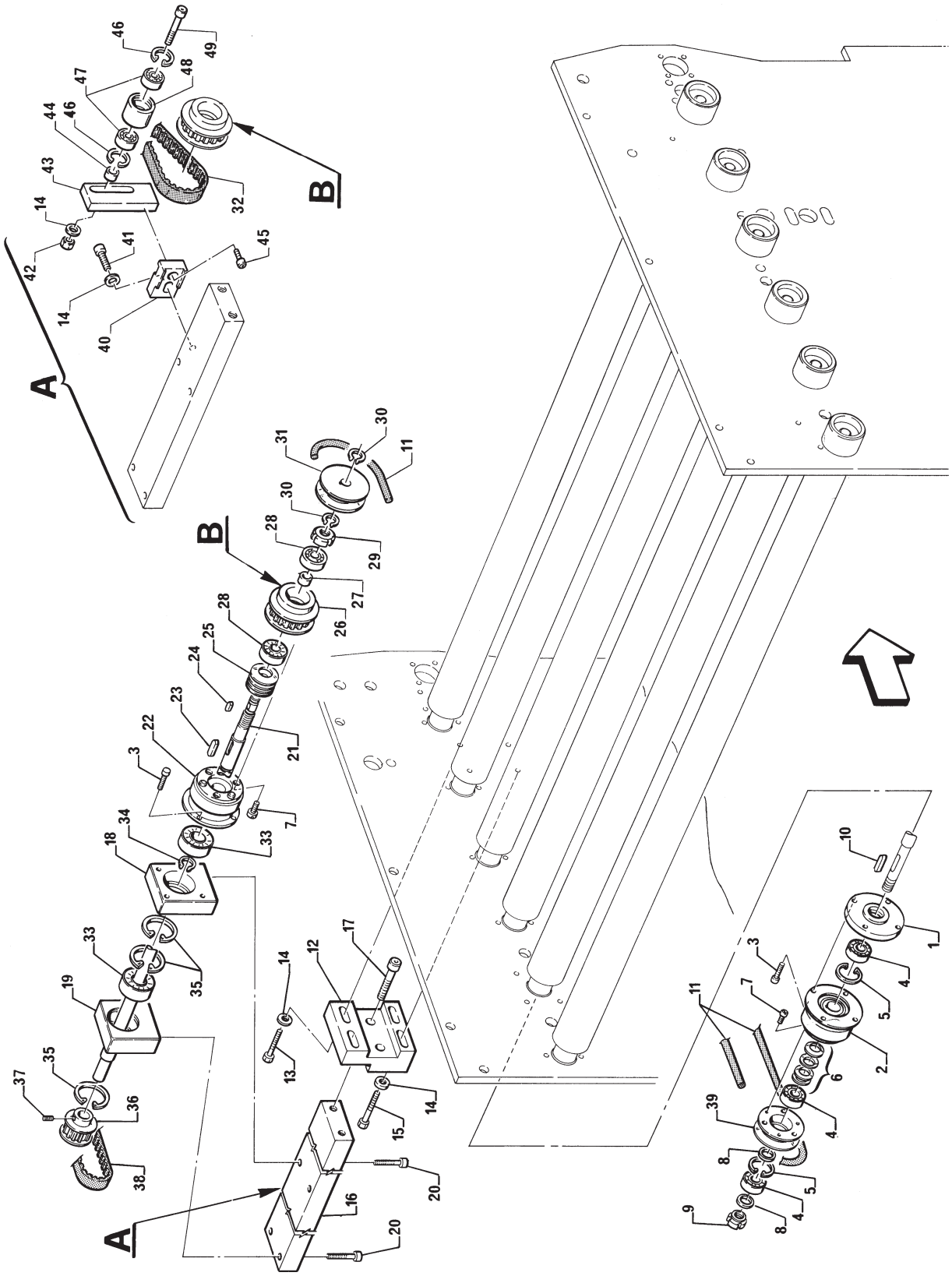
TAB. 5
Rev. A
1600-SPC



PART NUMBER	TAB.	POS.	SERIAL NUMBER	DESCRIPTION
062-02-104-00	6	1	==	FLAT BELT HABASIT F.0.20x1395
062-02-180-00	6	2	==	JOINING BLOCK 017100013
062-02-847-00	6	3	==	HANDLE MICROSWITCH HOLDER 017100033
062-02-301-00	6	4	==	SCREW M4x15
062-02-002-00	6	5	==	MICROSWITCH Z15 GQ22
062-02-184-00	6	6	==	SCREW M8x25
062-02-185-00	6	7	==	PULLEY 017100017
062-02-186-00	6	8	==	SCREW M6x10
062-02-018-00	6	9	==	BEARING 6001-2RS ø12-28-8
062-02-116-00	6	10	==	PLAIN WASHER DN6
062-02-187-00	6	11	==	SCREW M5x12
062-02-188-00	6	12	==	SCREW M10x25
062-02-189-00	6	13	==	RETAINER 017100010
062-02-190-00	6	14	==	SCREW M6x6
062-12-169-00	6	15	==	ROLLER WITH O RING 017101009
062-02-192-00	6	16	==	SHAFT 017100006
062-02-193-01	6	17	==	SHOULDER CONNECTING TIE ROD 017101011
062-02-207-01	6	18	==	THIN PANEL SUPPORT 017102034
062-02-195-00	6	19	==	SHAFT 017100007
062-02-196-01	6	20	==	THIN PANEL SUPPORT 017101012
062-02-197-00	6	21	==	HEX. HEAD SCREW M5x10
062-02-176-00	6	22	==	PLAIN WASHER DN5
062-02-198-00	6	23	==	SCREW M6x15
062-02-199-00	6	24	==	BELT TENSIONER SUPPORT 017100021
062-02-202-00	6	25	==	SPACER 017100019
062-02-203-00	6	26	==	PULLEY 017100018
062-02-064-00	6	27	==	SPRING RING I19
062-02-014-00	6	28	==	BEARING 626-2RS ø6-19-6
062-02-175-00	6	29	==	SCREW M6x25
062-02-205-00	6	30	==	SPACER 017100020
062-02-206-00	6	31	==	SCREW M6x35
062-12-259-00	6	32	==	O RING 4131


SEE TAB. 7

PART NUMBER	TAB.	POS.	SERIAL NUMBER	DESCRIPTION
062-02-848-00	7	1	==	ELECTROMAGNETIC CLUTCH BEARING FLANGE 017100022
062-02-849-00	7	2	==	ELECTROMAGNETIC CLUTCH TYPE KEB-24V DC MODIFIED (HOLE ø 10) 017100038
062-02-183-00	7	3	==	SCREW M3x10
062-02-044-00	7	4	==	BEARING 6000-2RS ø10-26-8
062-02-898-00	7	5	==	SPRING RING I26
062-02-899-00	7	6	==	BELLEVILLE WASHER ø12.2x20 THICK. 0.80
062-02-900-00	7	7	==	CAP SCREW M3x10
062-02-901-00	7	8	==	WASHER SS ø10-16-1.2 DIN 988
062-02-902-00	7	9	==	SELF-LOCKING RING NUT GUK M10x0,75
062-02-903-00	7	10	==	TANG TYPE B - 3x3x20
062-02-886-00	7	11	==	ROUND BELT TYPE P.E.M. ø 8x806
062-02-904-00	7	12	==	SUPPORT 017100031
062-02-905-00	7	13	==	HEX. SCREW M6x35
062-02-116-00	7	14	==	PLAIN WASHER DN6
062-02-906-00	7	15	==	HEX. SCREW M6x45
062-02-907-00	7	16	==	HORIZONTAL SUPPORT 017101030
062-02-155-00	7	17	==	SCREW M8x40
062-02-908-00	7	18	==	CLUTCH SUPPORT 017100028
062-02-909-00	7	19	==	BEARING SUPPORT 017100029
062-02-910-00	7	20	==	SCREW M5x30
062-02-911-00	7	21	==	SHAFT 017100024
062-02-912-00	7	22	==	ELECTROMAGNETIC CLUTCH TYPE KEB MODIFIED 017100023
062-02-272-00	7	23	==	TANG TYPE B - 5x5x20
062-02-913-00	7	24	==	TANG TYPE B - 3x3x12
062-02-278-00	7	25	==	BELLEVILLE WASHER D12.2x25 THICK. 0.90
062-12-053-00	7	26	==	PULLEY 017101027
062-02-915-00	7	27	==	SPACER 017100026
062-02-018-00	7	28	==	BEARING 6001-2RS ø 12-28-8
062-02-066-00	7	29	==	SELF-LOCKING RING NUT GUK M12x1
062-02-850-00	7	30	==	SPRING RING E10
062-02-916-00	7	31	==	PULLEY O17100032
062-02-257-00	7	32	==	TOOTHED BELT 176XL037
062-02-917-00	7	33	==	BEARING 62202-2RS1 ø 15-35-14
062-02-085-00	7	34	==	SPRING RING E15
062-02-918-00	7	35	==	SPRING RING I35
062-02-919-00	7	36	==	TOOTHED PULLEY 017100025
062-02-190-00	7	37	==	SCREW M6x6
062-02-920-00	7	38	==	TOOTHED BELT 540L050
062-12-022-00	7	39	==	PULLEY 017100004
062-12-041-00	7	40	==	SUPPORT FOR CHAIN STRETCHER 017100047
062-02-250-00	7	41	==	SCREW M6x20
062-02-246-00	7	42	==	HEX. NUT M6
062-12-042-00	7	43	==	PLATE FOR CHAIN STRETCHER 017100049
062-12-043-00	7	44	==	SPACER 017100050
062-02-217-00	7	45	==	SCREW M5x15
062-02-064-00	7	46	==	SPRING RING I19
062-02-014-00	7	47	==	BEARING 626 - 2Z ø 6 - 19 - 6
062-12-044-00	7	48	==	CHAIN STRETCHER 017100048
062-02-445-00	7	49	==	SCREW M6x40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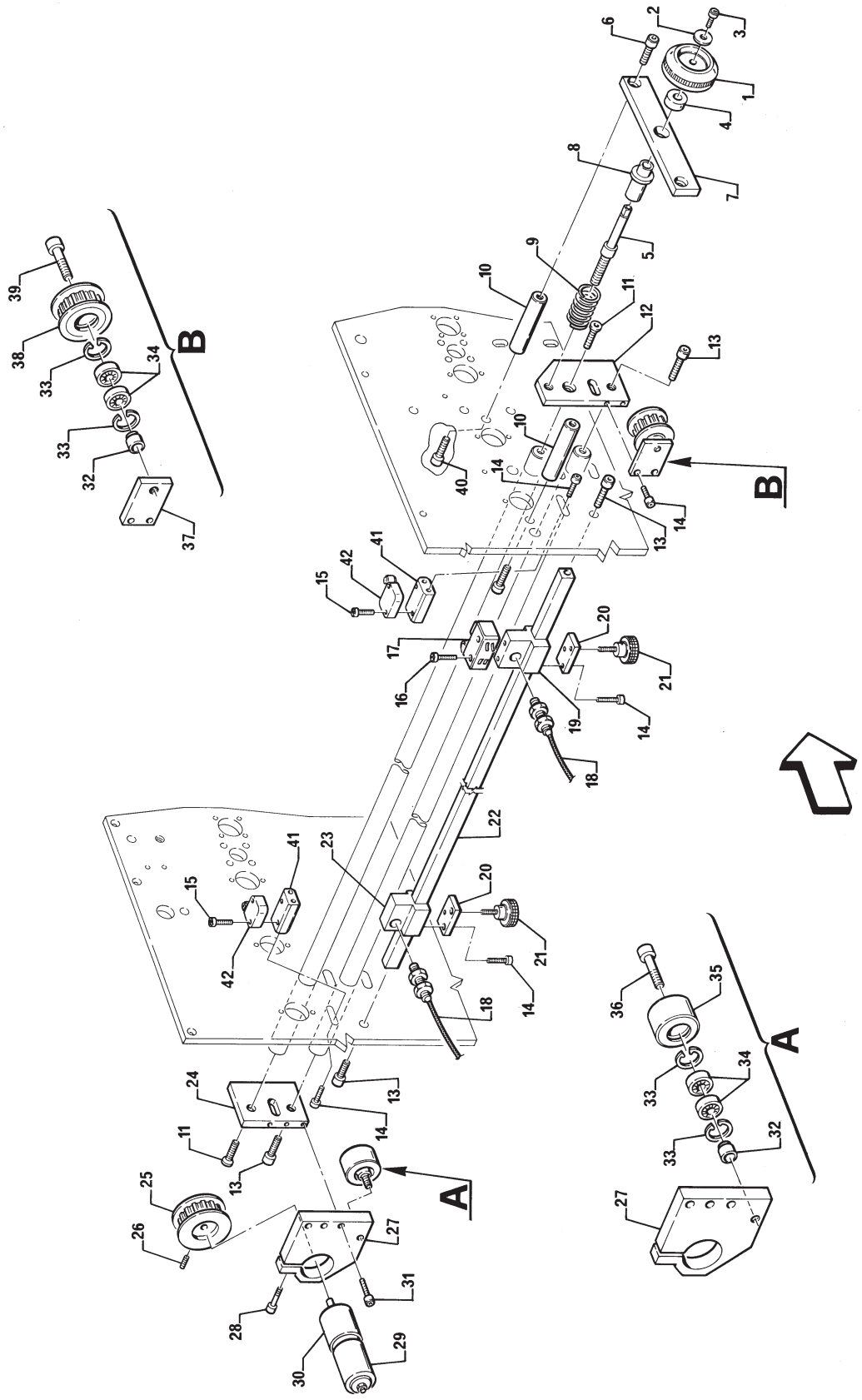
PART NUMBER	TAB.	POS.	SERIAL NUMBER	DESCRIPTION
062-02-921-00	8	1	==	ELESA KNOB VZ-56-7x7
062-02-338-00	8	2	==	PLAIN WASHER DN4
062-02-241-00	8	3	==	SCREW M4x10
062-02-922-00	8	4	==	SPACER 017900038
062-02-209-01	8	5	==	ADJUSTMENT SCREW 017901033
062-02-210-00	8	6	==	SCREW M8x12
062-02-211-00	8	7	==	SCREW SUPPORT 017900031
062-02-212-00	8	8	==	SPRING GUIDE SLEEVE 017900032
062-02-213-00	8	9	==	SPRING
062-02-214-00	8	10	==	STUD 017900030
062-02-215-00	8	11	==	SCREW M8x25
062-02-216-00	8	12	==	RIGHT PLATE 017900009
062-02-184-00	8	13	==	SCREW M8x25
062-02-217-00	8	14	==	SCREW M5x15
062-02-254-00	8	15	==	SCREW M3x20
062-02-218-00	8	16	==	SCREW M3x25
==	8	17	==	SEE TAB. 48
==	8	18	==	SEE TAB. 48
062-02-219-01	8	19	==	CENTRAL SUPPORT 017901025
062-02-923-00	8	20	==	PLATE 017900037
062-02-041-00	8	21	==	ELESA KNOB MTB 30-p-M5x20
062-02-924-00	8	22	==	MICROSWITCH HOLDER ROD 017901022
062-02-925-00	8	23	==	LATERAL SUPPORT 017900036
062-02-221-00	8	24	==	LEFT PLATE 017900010
062-02-222-00	8	25	==	CONTROL PULLEY 017900012
062-02-223-00	8	26	==	SCREW M5x15
062-02-224-00	8	27	==	MOTOR SUPPORTING PLATE 017900011
062-02-225-00	8	28	==	SCREW M4x20
062-12-026-00	8	29	==	MOTOR SA TYPE 3557012CS SUPER
062-02-823-00	8	30	==	REDUCTION GEAR TYPE 38/2 RATIO 43 ÷ 1
062-02-175-00	8	31	==	SCREW M5x25
062-02-226-00	8	32	==	SPACER 017900015
062-02-079-00	8	33	==	SPRING RING I22
062-02-043-00	8	34	==	BEARING 608-2Z ø 8-22-7
062-02-228-00	8	35	==	TENSIONER 017900024
062-02-229-00	8	36	==	SCREW M8x40
062-02-230-00	8	37	==	SUPPORT 017900013
062-02-231-00	8	38	==	PULLEY 017900014
062-02-232-00	8	39	==	SCREW M8x35
062-02-233-00	8	40	==	SCREW M8x20
062-02-926-00	8	41	==	MICROSWITCH HOLDER BLOCK 017900035
==	8	42	==	SEE TAB. 48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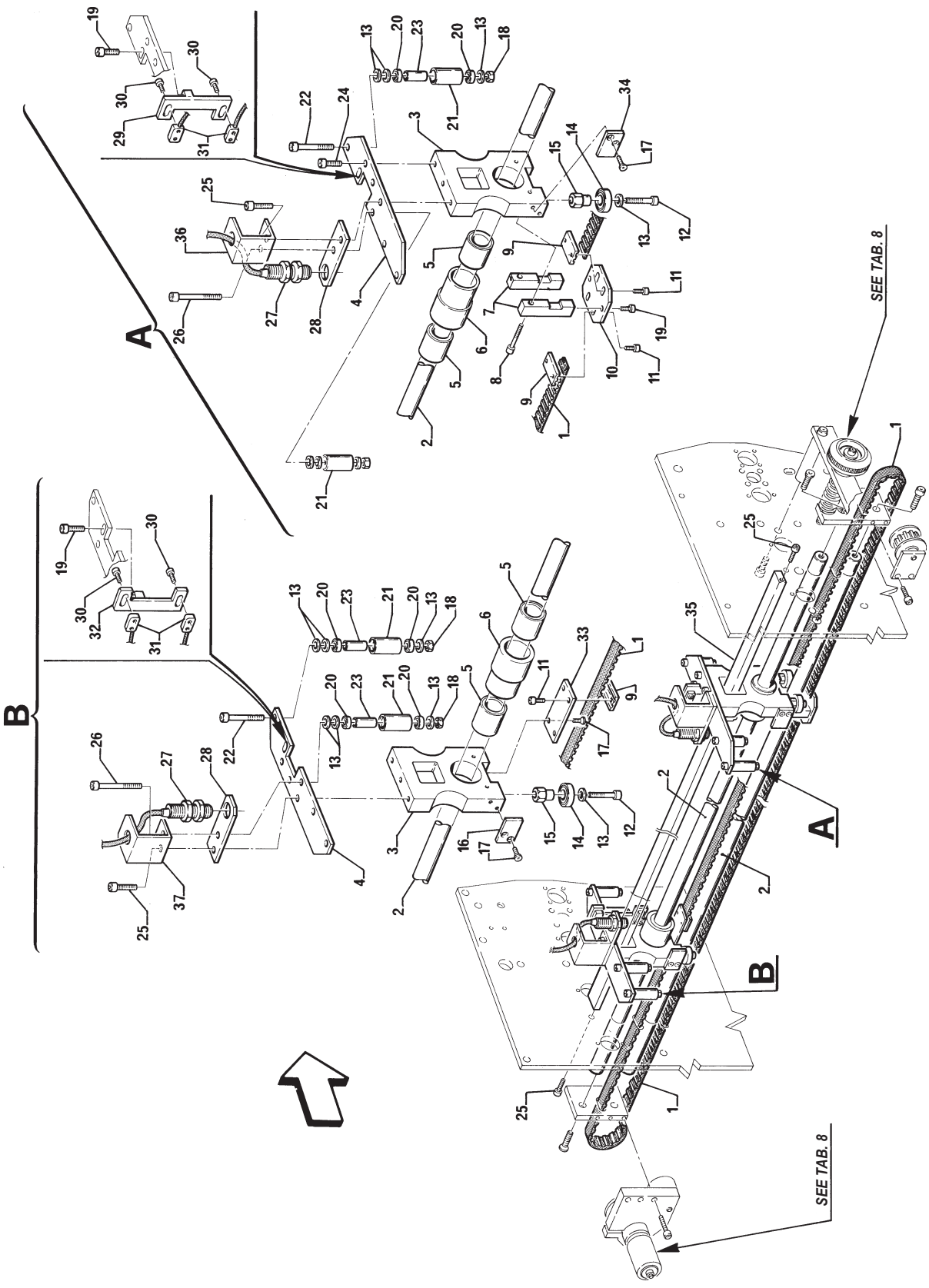
PART NUMBER	TAB.	POS.	SERIAL NUMBER	DESCRIPTION
062-02-046-00	9	1	==	TOOTHED BELT L075 239 TEETH
062-02-234-00	9	2	==	SHAFT 017900008
062-02-235-01	9	3	==	SUPPORT 017901001
062-12-054-00	9	4	==	JAW 017901016
062-02-045-00	9	5	==	BEARING BOX KH2030 ø 20-28-30
062-02-237-00	9	6	==	SLEEVE 017900002
062-02-238-00	9	7	==	SUPPORT 017900005
062-02-206-00	9	8	==	SCREW M6x35
062-02-239-00	9	9	==	BELT BLOCKING PLATE 017900004
062-02-240-00	9	10	==	BELT FIXING PLATE 017900006
062-02-241-00	9	11	==	SCREW M4x10
062-02-242-00	9	12	==	SCREW M6x30
062-02-930-00	9	13	==	WASHER 017900097
062-02-044-00	9	14	==	BEARING 6000-2RS ø 10-26-8
062-02-243-00	9	15	==	SLEEVE 017900007
062-02-244-00	9	16	==	PLATE TO ACTIVATE THE SENSOR 017900023
062-02-245-00	9	17	==	SCREW M4x10
062-02-246-00	9	18	==	HEX. NUT M6
062-02-217-00	9	19	==	SCREW M5x15
062-02-042-00	9	20	==	BEARING 618/6 ø 6-13-3,5
062-02-247-01	9	21	==	CENTERING ROLLER 017901017
062-02-248-00	9	22	==	SCREW M6x45
062-02-249-00	9	23	==	SPACER 017900018
062-02-198-00	9	24	==	SCREW M6x15
062-02-250-00	9	25	==	SCREW M6x20
062-02-251-00	9	26	==	SCREW M6x50
==	9	27	==	SEE TAB. 48
062-02-252-00	9	28	==	PHOTOCELL PLATE SUPPORT 017900019
062-02-253-00	9	29	==	PHOTOCELL SUPPORT 017900021
062-02-254-00	9	30	==	SCREW M3x20
==	9	31	==	SEE TAB. 48
062-02-255-00	9	32	==	PHOTOCELL SUPPORT 017900020
062-02-256-00	9	33	==	BELT FIXING PLATE 017900003
062-02-244-00	9	34	==	PLATE TO ACTIVATE THE SENSOR 017900023
062-02-927-01	9	35	==	SUPPORT FOR THIN PANEL 017901034
062-02-928-00	9	36	==	RIGHT CABLE CARRYING PLATE 017900026
062-02-929-00	9	37	==	LEFT CABLE CARRYING PLATE 017900027


SEE TAB. 8
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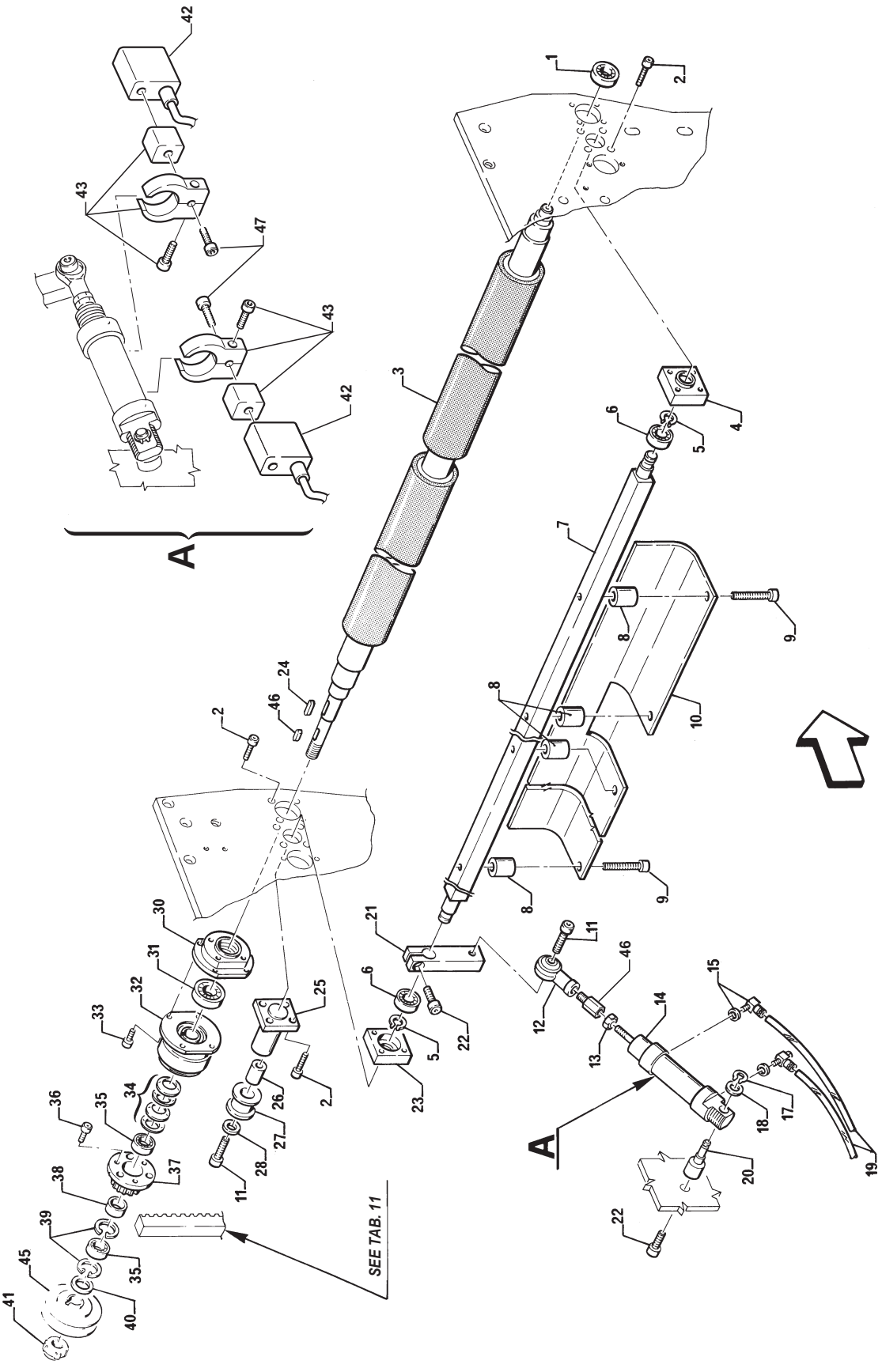
PART NUMBER	TAB.	POS.	SERIAL NUMBER	DESCRIPTION
062-02-018-00	10	1	==	BEARING 6001-2RS ø 12-28-8
062-02-175-00	10	2	==	SCREW M5x25
062-02-258-00	10	3	==	ROLL 017300008
062-02-259-00	10	4	==	RIGHT FLANGE 017300021
062-02-067-00	10	5	==	SPRING RING E12
062-02-016-00	10	6	==	BEARING 61901 ø 12-24-6
062-02-261-01	10	7	==	FRONT BARRIER SHAFT 017301015
062-02-262-00	10	8	==	SPACER 017300018
062-02-263-00	10	9	==	SCREW M8x45
062-02-264-00	10	10	==	FRONT BARRIER 017303019
062-02-265-00	10	11	==	SCREW M8x30
062-02-020-00	10	12	==	BALL ARTICULATION SFG8
062-02-267-00	10	13	==	HEX. NUT M8 (LOW)
062-01-001-01	10	14	==	CYLINDER TYPE 0822333201
062-01-002-00	10	15	==	UNION ELBOW 0821200103
062-02-286-00	10	16	==	SCREW M4x6
062-02-062-00	10	17	==	SPRING RING E8
062-02-121-00	10	18	==	PLAIN WASHER DN8
062-01-003-00	10	19	==	BLUE HOSE ø 6/4
062-02-269-00	10	20	==	CYLINDER PIVOT 017300053
062-02-270-00	10	21	==	LEVER 017300017
062-02-233-00	10	22	==	SCREW M8x20
062-02-271-00	10	23	==	LEFT FLANGE 017300020
062-02-272-00	10	24	==	TANG TYPE B 5x5x20
062-02-273-00	10	25	==	STUD 017300016
062-02-274-00	10	26	==	SLEEVE 017300014
062-02-275-00	10	27	==	SLIDING WHEEL RACK 017300013
062-02-121-00	10	28	==	PLAIN WASHER DN8
062-02-177-00	10	29	==	SCREW M5x10
062-02-276-00	10	30	==	FLANGE 017300009
062-02-017-00	10	31	==	BEARING 6002-2RS ø 15-32-9
062-02-814-00	10	32	==	ELECTROMAGNETIC CLUTCH TYPE C.05-03-110-24 DC 017300041
062-02-277-00	10	33	==	SCREW M3x6
062-02-278-00	10	34	==	BELLEVILLE WASHER ø 12,2x25 SP. 0,90
062-02-015-00	10	35	==	BEARING 61801 ø 12-21-5
062-02-279-00	10	36	==	SCREW M3x5
062-02-280-00	10	37	==	PINION 017300010
062-02-281-00	10	38	==	SPACER 017300042
062-02-069-00	10	39	==	SPRING RING I21
062-02-283-00	10	40	==	SPACER 017300040
062-02-066-00	10	41	==	SELF-LOCKING RING NUT GUK M12x1
062-01-008-02	10	42	==	SENSOR 0830100368
062-01-008-03	10	43	==	SUPPORT + SPACER 1827020068
062-02-052-00	10	44	==	ROLLER CONTROL PULLEY 017301051
062-02-932-00	10	45	==	TANG TYPE B 4x4x14
062-01-008-04	10	46	==	HEAD FOR CYLINDER 017700181
062-02-628-00	10	47	==	SCREW M4x25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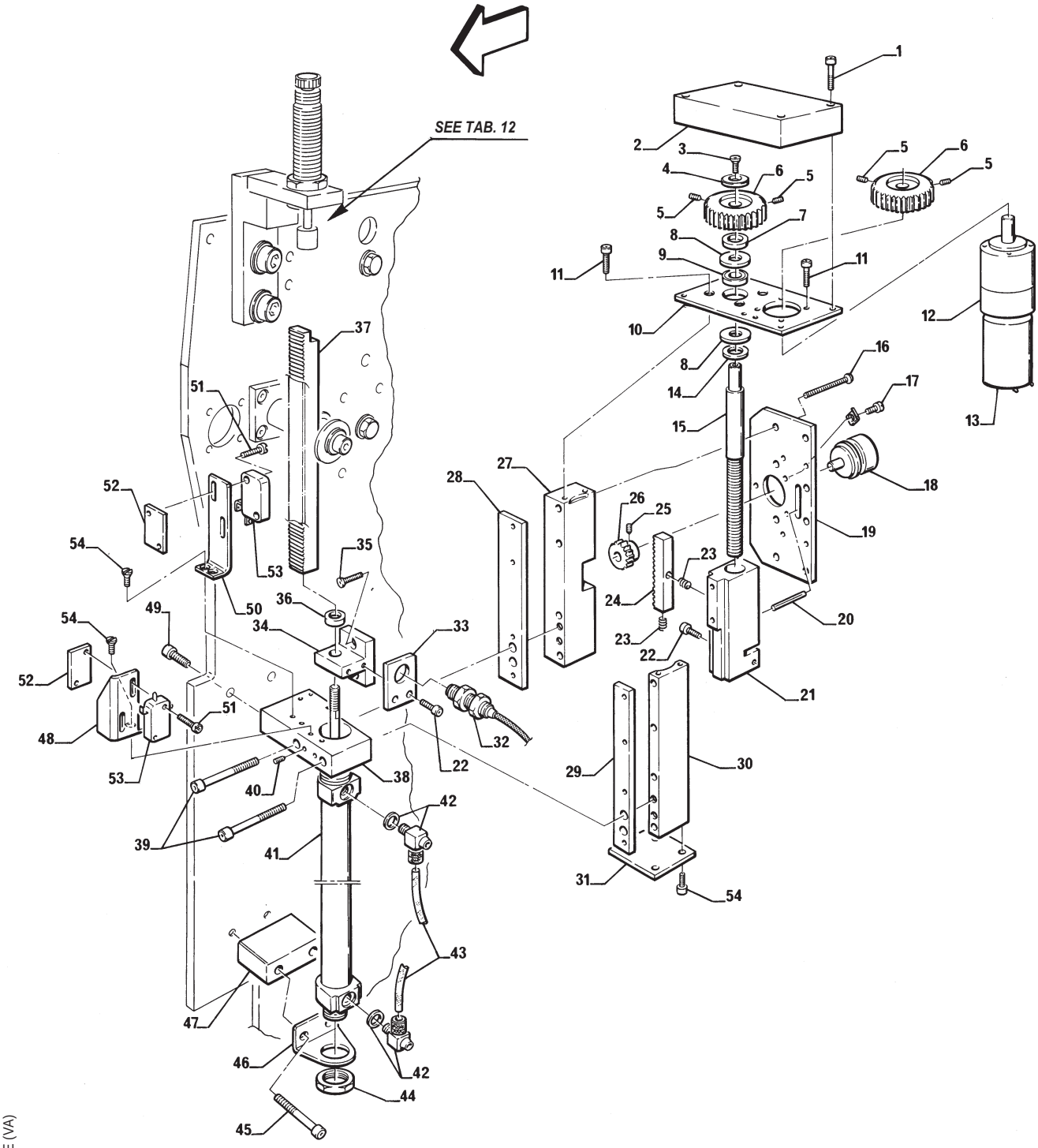
PART NUMBER	TAB.	POS.	SERIAL NUMBER	DESCRIPTION
062-02-175-00	11	1	==	SCREW M5x25
062-02-284-00	11	2	==	CASING 017300046
062-02-287-00	11	3	==	SCREW M5x10
062-02-288-00	11	4	==	WASHER 017300035
062-02-289-00	11	5	==	SCREW M4x10
062-02-290-00	11	6	==	PINION 017300037
062-02-291-00	11	7	==	SPACER 017300036
062-02-008-00	11	8	==	FIFTH WHEEL INA AS-0821
062-02-292-00	11	9	==	BEARING 618/8 ø 8-16-4
062-02-293-00	11	10	==	SERVOMOTOR SUPPORTING FLANGE 017300027
062-02-183-00	11	11	==	SCREW M3x20
062-02-823-00	11	12	==	REDUCTION GEAR TYPE 38/2 RAP. 43 ÷ 1
062-02-026-00	11	13	==	MOTOR SA TYPE 3557 012 CS SUPER
062-02-294-00	11	14	==	WASHER 017300048
062-02-295-00	11	15	==	EDGE REGISTER SCREW 017300034
062-02-296-00	11	16	==	SCREW M5x40
062-02-297-00	11	17	==	SCREW M3x8
==	11	18	==	SEE TAB. 48
062-02-298-00	11	19	==	COVER 017300026
062-02-299-00	11	20	==	SPRING PIN ø 5x30
062-02-300-00	11	21	==	SLIDING BLOCK 017300033
062-02-301-00	11	22	==	SCREW M4x15
062-02-302-00	11	23	==	SPRING CO1962
062-02-303-00	11	24	==	RACK 017300038
062-02-304-00	11	25	==	SCREW M3x4
062-02-305-00	11	26	==	PINION 017300039
062-02-306-00	11	27	==	RULE FOR SLIDING BLOCK 017300029
062-02-307-00	11	28	==	RULE GUIDE SLIDING BLOCK 017300031
062-02-308-00	11	29	==	RULE GUIDE SLIDING BLOCK 017300032
062-02-309-00	11	30	==	RULE FOR SLIDING BLOCK 017300028
062-02-310-00	11	31	==	LOWER COVER 017300030
==	11	32	==	SEE TAB. 48
062-02-311-00	11	33	==	SENSOR SUPPORT 017300024
062-02-312-00	11	34	==	FRONT EDGE REGISTER BLOCK 017300025
062-02-313-00	11	35	==	SCREW M5x20
062-02-314-00	11	36	==	SHOCK ABSORBER WASHER 017300012
062-02-315-00	11	37	==	RACK 017300011
062-02-316-00	11	38	==	SUPPORT 017300022
062-02-317-00	11	39	==	SCREW M6x60
062-02-537-00	11	40	==	SCREW M5x10
062-01-004-00	11	41	==	CYLINDER TYPE 0822 033 207
062-01-002-00	11	42	==	UNION ELBOW 0821 200 103
062-01-003-00	11	43	==	BLUE HOSE ø 6/4
062-01-053-00	11	44	==	NUT TYPE 1823300004
062-02-251-00	11	45	==	SCREW M6x50
062-01-054-00	11	46	==	FOOT TYPE 1821332027
062-02-318-00	11	47	==	CYLINDER SUPPORT SPACER 017300044
062-02-319-00	11	48	==	MICROSWITCH SUPPORT 017000012
062-02-250-00	11	49	==	SCREW M6x20
062-02-320-00	11	50	==	MICROSWITCH SUPPORT 017900009
062-02-254-00	11	51	==	SCREW M3x20
062-02-933-00	11	52	==	MICROSWITCH FIXING BRACKET 017000005
==	11	53	==	SEE TAB. 48
062-02-934-00	11	54	==	SCREW M3x8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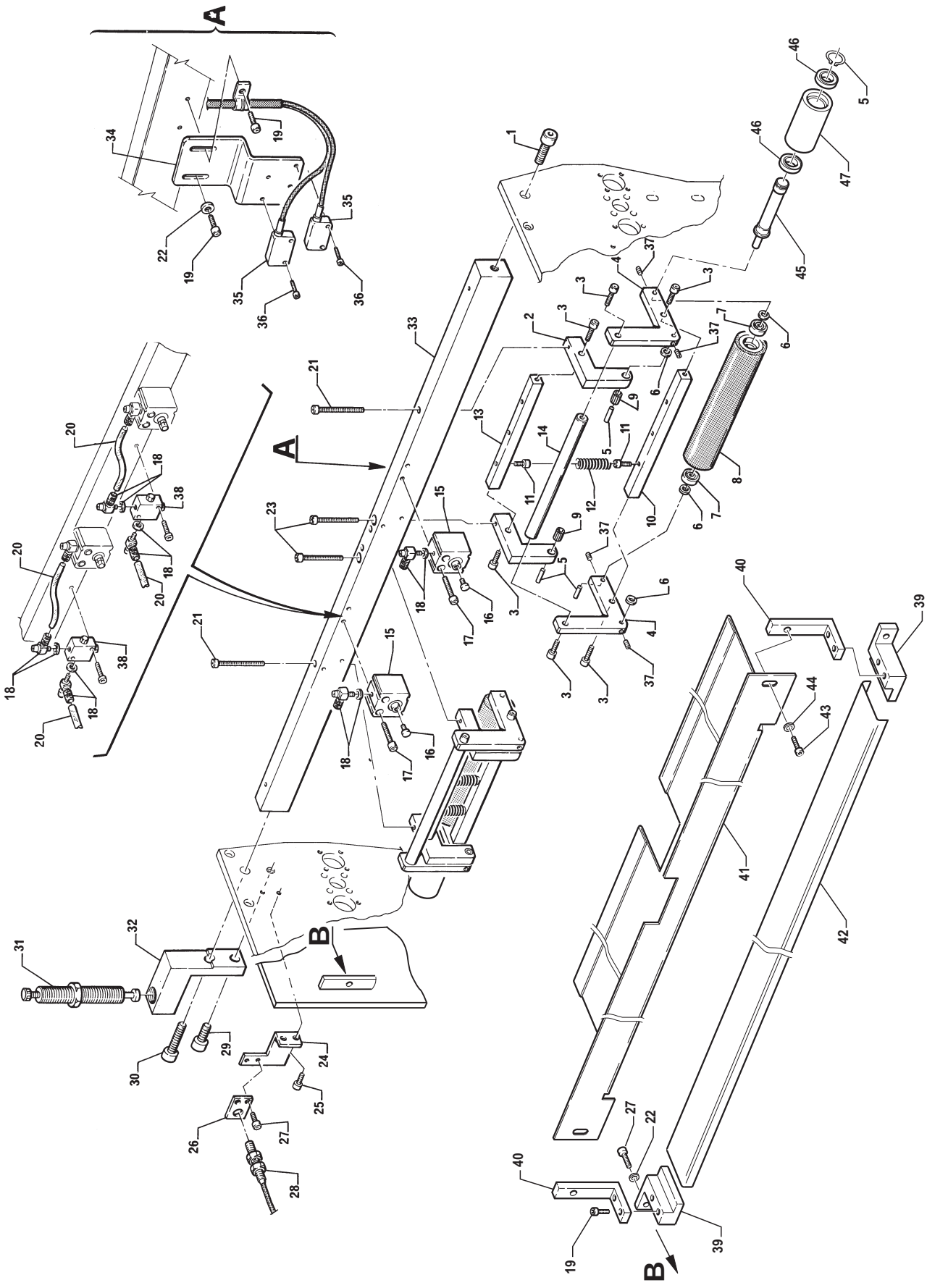
PART NUMBER	TAB.	POS.	SERIAL NUMBER	DESCRIPTION
062-02-134-00	12	1	==	SCREW M10x30
062-02-322-00	12	2	==	INSIDE SUPPORT 017300002
062-02-250-00	12	3	==	SCREW M6x20
062-02-323-00	12	4	==	OUTSIDE SUPPORT 017300004
062-02-067-00	12	5	==	SEEGER RING E12
062-02-121-00	12	6	==	PLAIN WASHER DN8
062-02-014-00	12	7	==	BEARING 626-2RS ø 6-19-6
062-02-325-00	12	8	==	ROLL 017300007
062-02-019-00	12	9	==	BEARING BOX HK0608 ø 6-10-8
062-02-326-00	12	10	==	LOWER TIE ROD 017300005
062-02-327-00	12	11	==	SCREW M6x10
062-02-328-00	12	12	==	SPRING CO2222
062-02-329-00	12	13	==	UPPER TIE ROD 017300003
062-02-330-00	12	14	==	STUD 017300006
062-01-005-00	12	15	==	CYLINDER TYPE 0822406041
062-02-331-00	12	16	==	SPACER PLATE 017300043
062-02-332-00	12	17	==	SCREW M5x35
062-01-076-00	12	18	==	UNION ELBOW 0821 200 178
062-02-301-00	12	19	==	SCREW M4x15
062-01-003-00	12	20	==	BLUE HOSE ø 6/4
062-02-317-00	12	21	==	SCREW M6x60
062-02-338-00	12	22	==	PLAIN WASHER DN4
062-02-251-00	12	23	==	SCREW M6x50
062-02-333-00	12	24	==	SWITCH SENSOR SUPPORT 017300049
062-02-217-00	12	25	==	SCREW M5x15
062-02-311-00	12	26	==	SWITCH SENSOR SUPPORT 017300024
062-02-241-00	12	27	==	SCREW M4x10
==	12	28	==	SEE TAB. 48
062-02-188-00	12	29	==	SCREW M10x25
062-02-334-00	12	30	==	SCREW M10x45
062-01-061-00	12	31	==	HYDRAULIC SHOCK ABSORBER OEM 5MX12-JN-UC
062-02-335-00	12	32	==	SHOCK ABSORBER SUPPORT 017300050
062-02-336-00	12	33	==	ROD 017300001
062-02-337-00	12	34	==	PHOTOCELL SUPPORT 017000011
==	12	35	==	SEE TAB. 48
062-02-183-00	12	36	==	SCREW M3x20
062-02-534-00	12	37	==	SCREW M5x6
062-02-970-00	12	38	==	BLOCK
062-12-222-00	12	39	==	SUPPORT ON REFLECTING BARRIER SCX325/3
062-12-223-00	12	40	==	TOP COVER SUPPORT SCX325/4
062-12-224-00	12	41	==	COVER ON PANEL INSERTION ROLL SCX 325/6
==	12	42	==	SEE TAB. 39
062-02-177-00	12	43	==	SCREW M5x10
062-02-176-00	12	44	==	PLAIN WASHER DN5
062-12-228-00	12	45	==	SHAFT FOR THIN PANEL ROLL SCX 325/2
062-12-226-00	12	46	==	BEARING 6001-2Z ø12-28-8
062-12-227-00	12	47	==	EXTENSION ROLLER FOR THINBOARD SCX 325/1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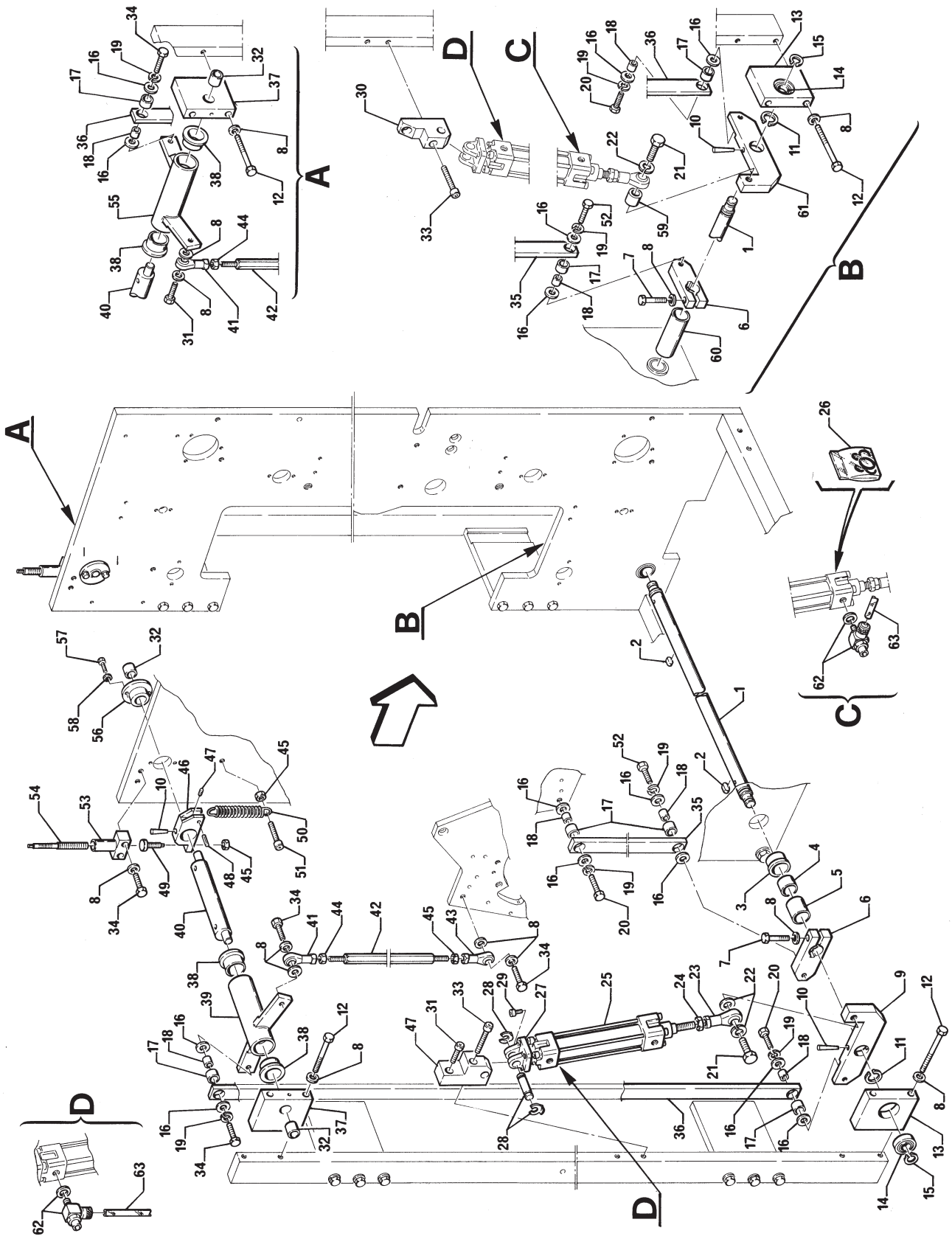
PART NUMBER	TAB.	POS.	SERIAL NUMBER	DESCRIPTION
062-02-339-00	13	1	==	SHAFT 017200010
062-02-340-00	13	2	==	TANG 8x7x24
062-02-341-00	13	3	==	SLEEVE 017200016
062-02-007-00	13	4	==	BUSHING GLYCODUR-GLY-PG 252825F
062-02-343-00	13	5	==	SPACER 017200014
062-02-344-00	13	6	==	LEVER 017200015
062-02-155-00	13	7	==	HEX. HEAD SCREW M8x40
062-02-121-00	13	8	==	PLAIN WASHER DN8
062-02-345-00	13	9	==	RIGHT ROCKER 017200012
062-02-346-00	13	10	==	CONICAL TAPER PIN ø 6
062-02-081-00	13	11	==	SPRING RING E25
062-02-348-00	13	12	==	HEX. HEAD SCREW M8x90
062-02-349-00	13	13	==	LOWER SUPPORT 017200007
062-02-003-00	13	14	==	BEARING 6203-2RS ø 17-40-12
062-02-204-00	13	15	==	SPRING RING E17
062-02-008-00	13	16	==	FIFTH WHEEL INA AS 0821
062-02-006-00	13	17	==	BUSHING GLYCODUR GLY PG 151720 F
062-02-352-00	13	18	==	PIN 017200028
062-02-353-00	13	19	==	SPRING WASHER DN8
062-02-354-00	13	20	==	HEX. HEAD SCREW M8x25
062-02-355-00	13	21	==	HEX. HEAD SCREW M12x40
062-02-164-00	13	22	==	PLAIN WASHER DN13
062-02-002-00	13	23	==	BALL JOINT (FEMALE THREAD) M12x1,25
062-02-357-00	13	24	==	HEX. NUT M12
062-01-006-00	13	25	==	CYLINDER TYPE 08221303 ø 40 STROKE 100
062-01-006-01	13	26	==	SPARE PARTS KIT 1827000068
062-01-055-00	13	27	==	HINGE 1827001290
062-01-056-00	13	28	==	PIN 1823120021
062-02-327-00	13	29	==	SCREW M6x10
062-02-358-00	13	30	==	RIGHT CYLINDER SUPPORT 017200008
062-02-265-00	13	31	==	SCREW M8x30
062-02-005-00	13	32	==	BUSHING GLYCODUR GLY-PG 15-17-20 F
062-02-360-00	13	33	==	SCREW M8x55
062-02-232-00	13	34	==	HEX. HEAD SCREW M8x35
062-02-361-00	13	35	==	ROD 017200026
062-02-362-00	13	36	==	ROD 017200025
062-02-363-00	13	37	==	UPPER SUPPORT 017200009
062-02-004-00	13	38	==	FLANGED BUSHING GLICODUR GLY PB-G 303416F
062-02-365-00	13	39	==	RIGHT UPPER ROCKER 017200017
062-02-366-00	13	40	==	ECCENTRIC SHAFT 017200019
062-02-367-00	13	41	==	BALL JOINT (LEFT THREAD) M8
062-02-368-00	13	42	==	THREADED ROD 017200027
062-02-001-00	13	43	==	BALL JOINT (FEMALE THREAD) M8
062-02-370-00	13	44	==	LEFT HEX. NUT M8
062-02-172-00	13	45	==	HEX. NUT M8
062-02-371-00	13	46	==	ADJUSTMENT BLOCK 017200021
062-02-934-00	13	47	==	LEFT CYLINDER SUPPORT 017200055
062-02-372-00	13	48	==	SPRING PIN ø 5x20
062-02-373-00	13	49	==	SCREW 017200054
062-02-374-00	13	50	==	SPRING TR 3514
062-02-232-00	13	51	==	SCREW M8x35
062-02-407-00	13	52	==	HEX. HEAD SCREW M8x30
062-02-375-00	13	53	==	NUT SCREW 017200024
062-02-376-00	13	54	==	ADJUSTMENT SCREW 017200024
062-02-377-00	13	55	==	LEFT UPPER ROCKER 017200018
062-02-378-00	13	56	==	ECCENTRIC SLEEVE 017200020
062-02-379-00	13	57	==	HEX. HEAD SCREW M4x14
062-02-380-00	13	58	==	PLAIN WASHER DN14
062-02-381-00	13	59	==	SPACER 017200052
062-02-382-00	13	60	==	SPACER 017200013
062-02-383-00	13	61	==	LEFT ROCKER 017200011
062-01-007-00	13	62	==	UNION ELBOW ADJUSTABLE 0821200106
062-01-003-00	13	63	==	BLUE HOSE ø 6/4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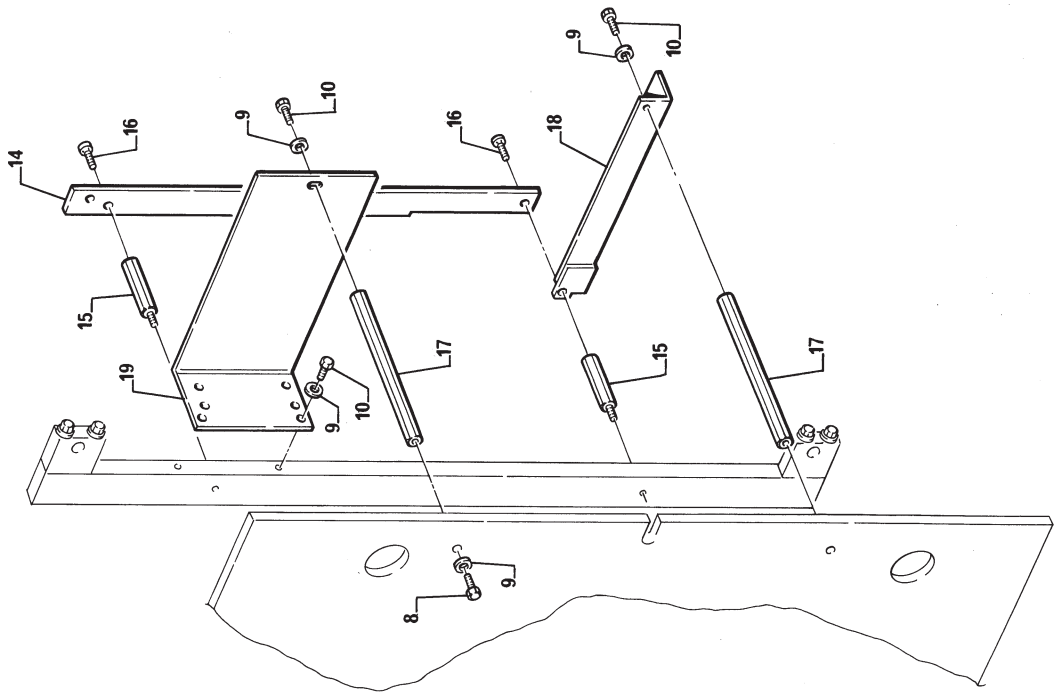
PART NUMBER	TAB.	POS.	SERIAL NUMBER	DESCRIPTION
062-02-999-00	14	1	==	RACEWAY-HOLDER SUPPORT 017000013
062-12-001-00	14	2	==	RACEWAY-HOLDER SUPPORT 017000015
062-02-514-00	14	3	==	HEX. SCREW M4x20
062-12-002-00	14	4	==	RACEWAY-HOLDER 017000014
062-02-379-00	14	5	==	HEX. SCREW M4x14
062-02-338-00	14	6	==	PLAIN WASHER DN4
062-12-003-00	14	7	==	SPACER 01700019
062-02-665-00	14	8	==	HEX. SCREW M6x30
062-02-116-00	14	9	==	PLAIN WASHER DN6
062-02-384-00	14	10	==	HEX. SCREW M6x15
062-12-004-00	14	11	==	RIGHT TERMINAL BOARD SUPPORT 017000020
062-02-628-00	14	12	==	SCREW M4x25
062-12-005-00	14	13	==	AIR PIPE SUPPORT 017000008
062-12-006-00	14	14	==	RACEWAY-HOLDER 017000022
062-12-007-00	14	15	==	SPACER 017000018
062-02-812-00	14	16	==	SCREW M6x16
062-12-008-00	14	17	==	SPACER 017000017
062-12-009-00	14	18	==	FITTING HOLDER 017000023
062-12-010-00	14	19	==	LEFT TERMINAL BOARD SUPPORT 017000021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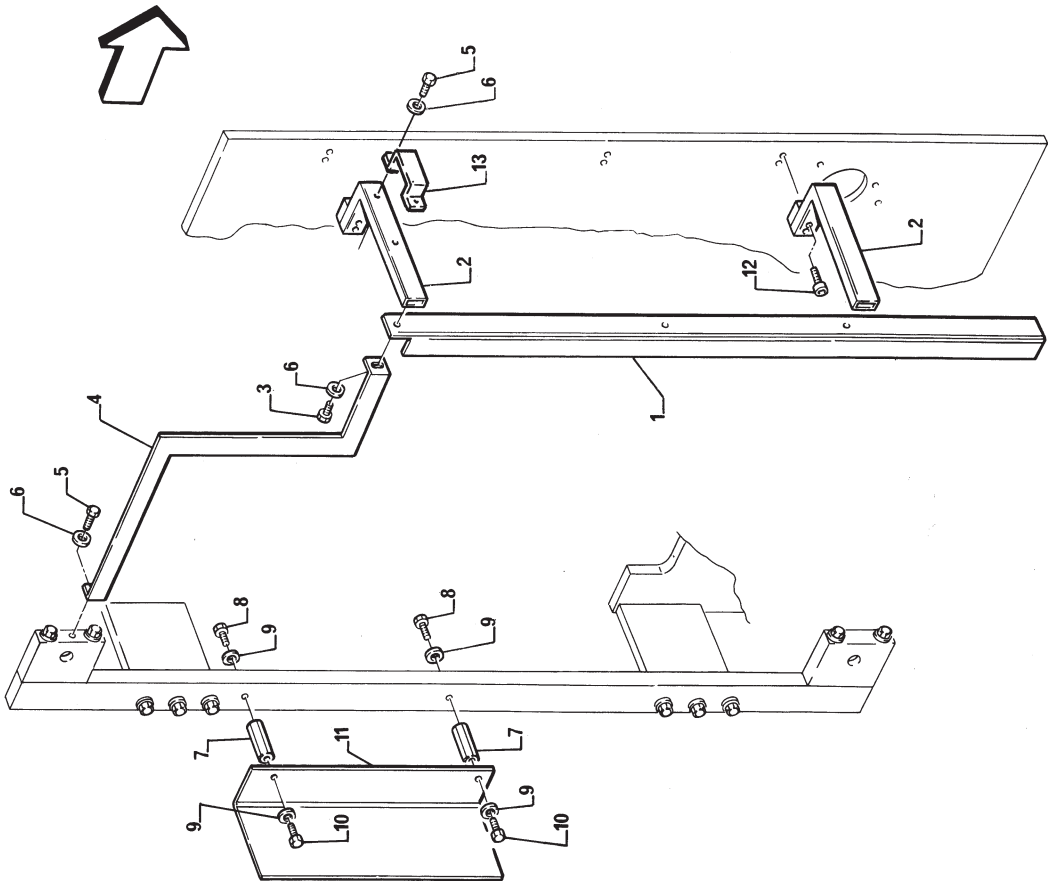
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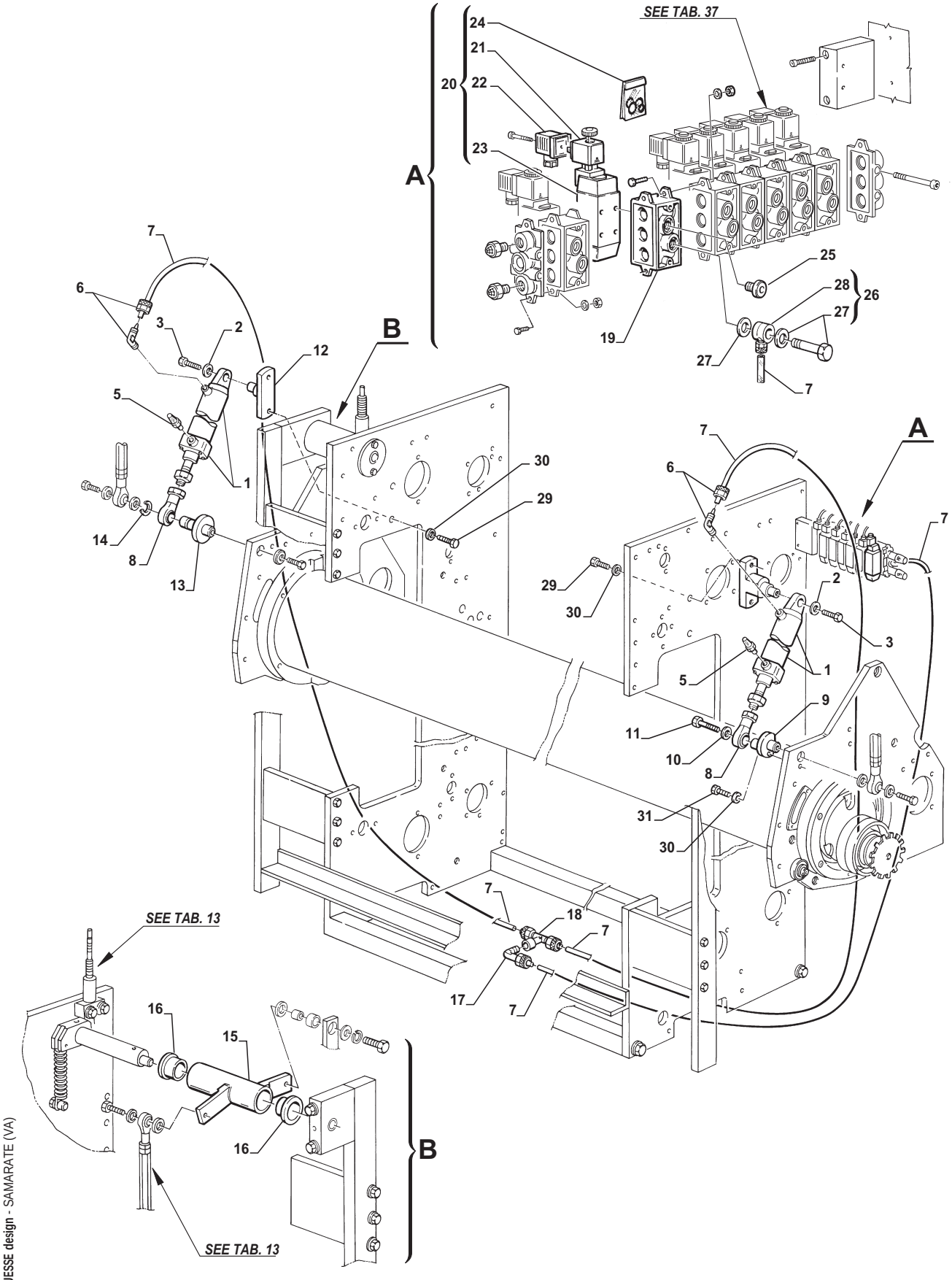
PART NUMBER	TAB.	POS.	SERIAL NUMBER	DESCRIPTION
062-12-130-00	15	1	==	“BOSCH” CYLINDER M40x100 - 0822011018
062-12-137-00	15	2	==	PLAIN WASHER DN 6
062-12-138-00	15	3	==	SCREW M6x30
062-12-131-00	15	4	==	RIGHT SUPPORT 042100001
062-12-139-00	15	5	==	SILENCER 1/4″
062-12-140-00	15	6	==	UNION ELBOW TYPE C5 - 1/8″ COD. 2305004
062-01-016-00	15	7	==	HOSE ø 8/6
062-12-132-00	15	8	==	“BOSCH” BALL ARTICULATION M16x1,5 COD. 1822124005
062-12-133-00	15	9	==	RIGHT PIN 042100004
062-02-121-00	15	10	==	PLAIN WASHER DN 8
062-12-141-00	15	11	==	SCREW M8x10
062-12-134-00	15	12	==	LEFT SUPPORT 042100002
062-12-135-00	15	13	==	LEFT PIN 042100003
062-02-081-00	15	14	==	SPRING RING E25
062-12-136-00	15	15	==	RIGHT UPPER ROCKER 042100005
062-02-004-00	15	16	==	FLANGED BUSHING GLICODUR GLY PB-G 303416F
062-12-142-00	15	17	==	UNION ELBOW TYPE C/5F - 8/6+1/4″ - COD. 2352002
062-12-143-00	15	18	==	UNION TEE TYPE C7 - 1/4″ - COD. 2307004
062-01-021-00	15	19	==	INTERMEDIATE PLATE 1.825.503.144
062-01-022-00	15	20	==	ELECTROVALVE 0.820.024.126 24V DC (ASSY)
062-01-022-03	15	21	==	24VDC COIL FOR ELECTROVALVE BOSCH 1.824.210.223
062-01-022-04	15	22	==	CONNECTOR WITH INDICATOR FOR ELECTROVALVE 1.834.484.101
062-01-022-02	15	23	==	VALVE BODY BOSCH 0.820.024.997
062-01-022-01	15	24	==	SPARE PARTS KIT 1.827.009.314
062-01-032-00	15	25	==	PLUG A7 G1/4″ COD. 2107002
062-01-030-00	15	26	==	SINGLE UNION ASSY ø6/4 - G1/4″
062-01-030-01	15	27	==	SINGLE ROD M D7 - G1/4″ COD. 2407003
062-01-030-02	15	28	==	SINGLE RING D5 ø6/4 - G1/4″ COD. 2405003
062-12-144-00	15	29	==	SCREW M6x30
062-12-145-00	15	30	==	PLAIN WASHER DN 6
062-12-146-00	15	31	==	SCREW M6x20


SEE TAB. 37
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PART NUMBER	TAB.	POS.	SERIAL NUMBER	DESCRIPTION
062-02-385-00	16	1	==	DRIVING SLEEVE 022300012
062-02-299-00	16	2	==	SETTING PIN ø 5x30
062-02-186-00	16	3	==	SCREW M6x10
062-02-386-00	16	4	==	SPACER 022300010
062-12-149-00	16	5	==	LEFT SHOULDER 022301001
062-02-407-00	16	6	==	HEX. HEAD SCREW M8x30
062-12-121-00	16	7	==	PLAIN WASHER DN8
062-12-018-00	16	8	==	BALL BEARING 6001-2Z ø 12-28-8
062-02-388-00	16	9	==	SPACER 022300011
062-12-158-00	16	10	==	PULLEY 022301009 Z=20
062-12-148-00	16	11	==	TOOTHED BELT 120XL037 Z60
062-12-151-00	16	12	==	RIGHT SHOULDER 022301002
062-12-152-00	16	13	==	CONTROL SHAFT 022301006
062-12-079-00	16	14	==	ROLLER 022301008
062-02-186-00	16	15	==	SCREW M6x10
062-12-153-00	16	16	==	SHAFT 022301007
062-12-154-00	16	17	==	CENTRAL SUPPORT 022301005
062-12-155-00	16	18	==	FRONT SUPPORT 022301004
062-12-156-00	16	19	==	PANELS SUPPORT 022300019
062-12-225-00	16	20	==	HEX. HEAD SCREW M4x8
062-02-338-00	16	21	==	PLAIN WASHER DN4
062-12-157-00	16	22	==	REAR SUPPORT 022301013
062-02-185-00	16	23	==	PULLEY 017100017
062-12-159-00	16	24	==	PULLEY 022300020 Z=18
062-12-147-00	16	25	==	TOOTHED BELT 130xL037 Z65
062-12-061-02	16	26	==	IDLE ROLL 022300015
062-12-161-00	16	27	==	BEARING 6000-2Z ø 10-26-8
062-12-162-00	16	28	==	SEEGER RING E10
062-12-163-00	16	29	==	LEFT CASING 022300017
062-12-164-00	16	30	==	RIGHT CASING 022300018
062-12-165-00	16	31	==	IDLER ROLL SHAFT 022300016
062-12-083-00	16	32	==	RUBBER CENTRAL UNIT ROLLS ASSY
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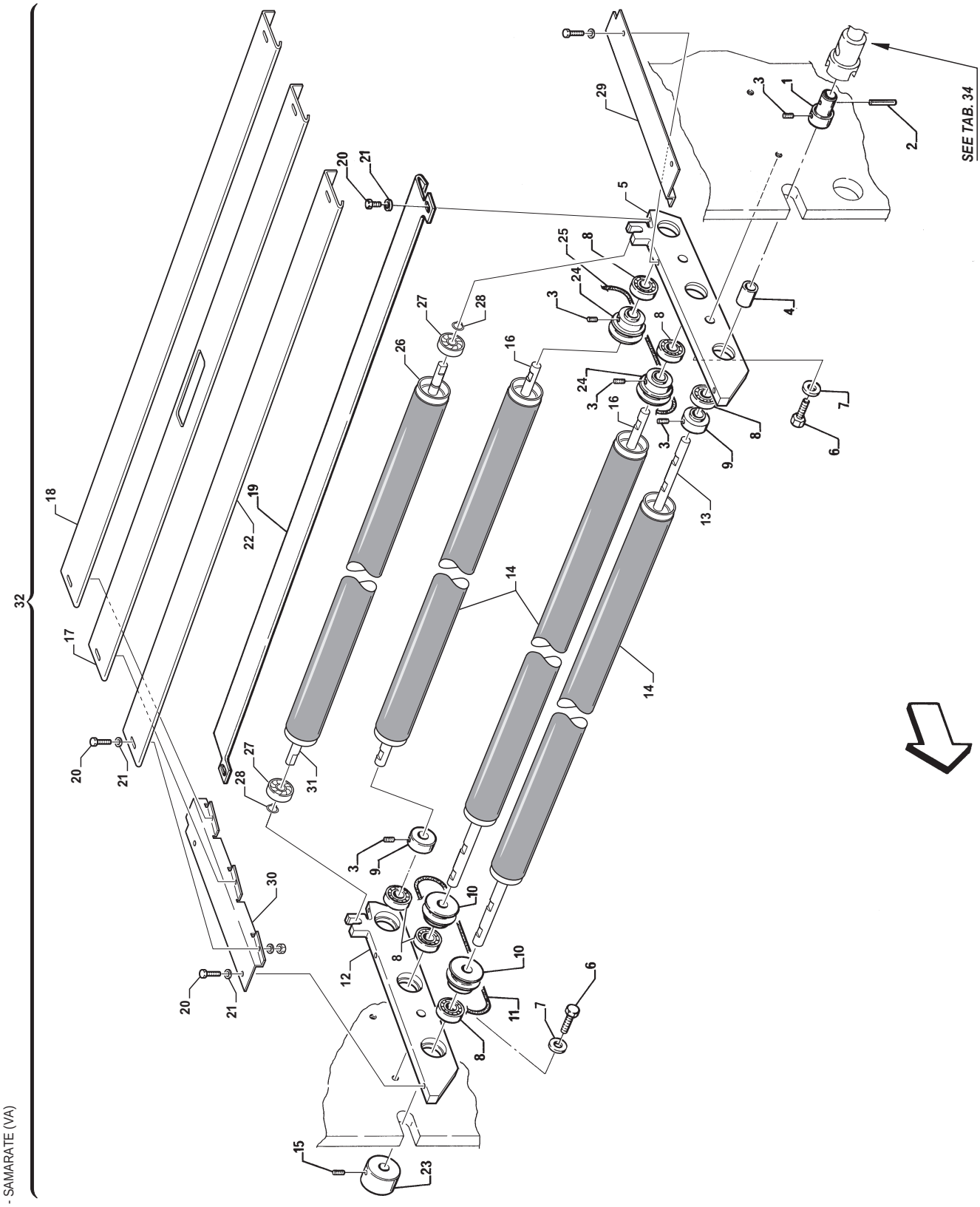
SEE TAB. 34
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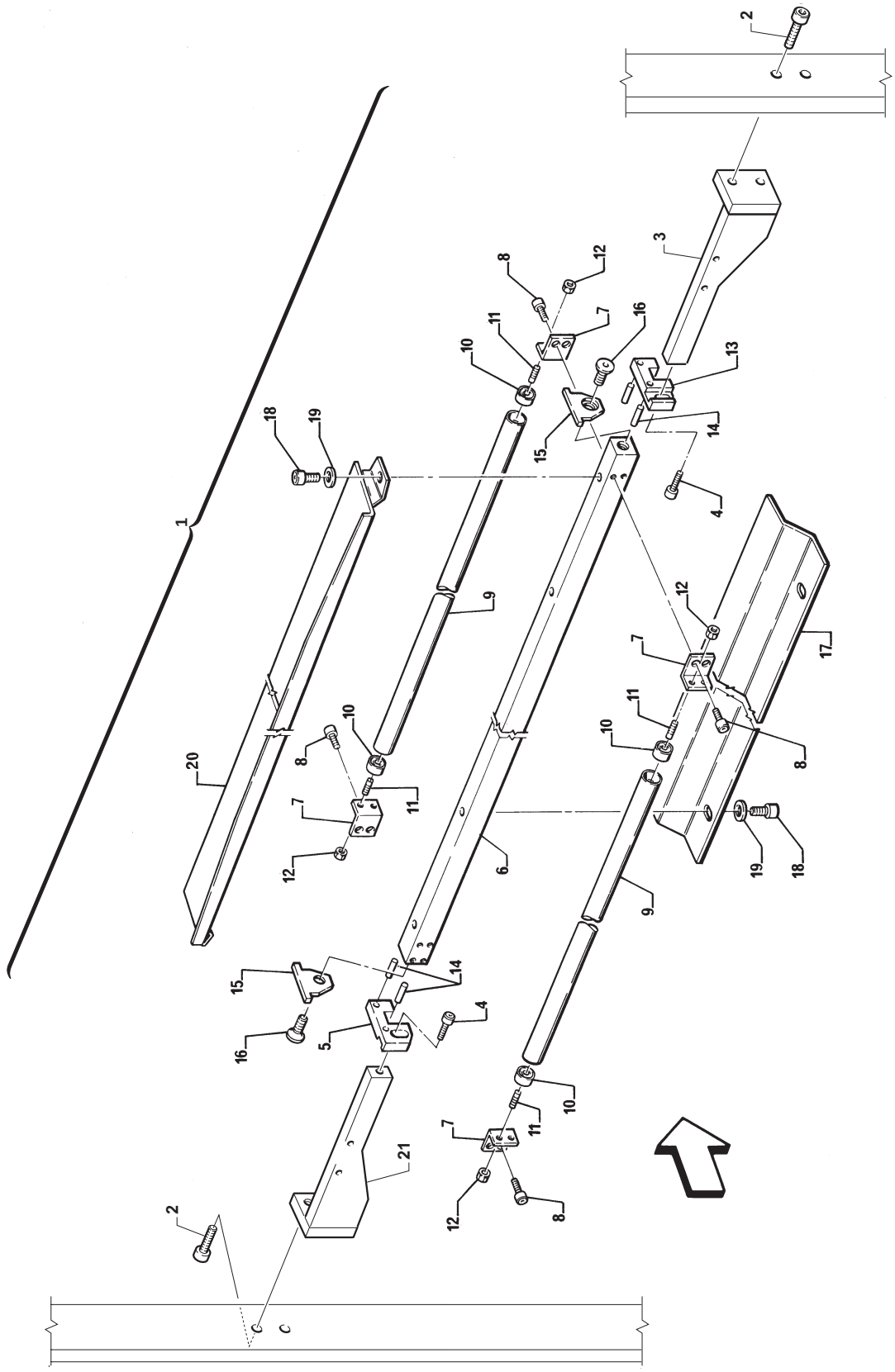
SHIPLEY
A ROHM AND HAAS COMPANY

PANEL SUPPORT NEEDLE-ROLLS

TAB. 17
Ed. 1 - Rev. A
1600-SPC

PART NUMBER	TAB.	POS.	SERIAL NUMBER	DESCRIPTION
062-12-173-00	17	1	==	PANEL SUPPORT NEEDLE-ROLLERS 06200242
062-02-265-00	17	2	==	SCREW M8x30
062-02-268-00	17	3	==	RIGHT BRACKET 024202006
062-02-217-00	17	4	==	SCREW M5x15
062-02-260-01	17	5	==	RIGHT PLATE 024202005
062-02-347-00	17	6	==	BAR 024200001
062-02-350-00	17	7	==	BRACKET 024201003
062-02-241-00	17	8	==	SCREW M4x10
062-02-282-00	17	9	==	ROLL 024200002
062-02-403-00	17	10	==	BEARING 624-2Z ø4-13-5
062-02-404-00	17	11	==	GRUB SCREW 024200007
062-02-246-00	17	12	==	HEX. NUT M6
062-02-935-00	17	13	==	LEFT PLATE 024201021
062-02-936-00	17	14	==	PARALLEL PIN ø 5x18 UNI 1707
062-02-937-00	17	15	==	COUPLING PLATE 024200020
062-12-020-00	17	16	==	SCREW M5x18
062-02-853-00	17	17	==	SUPPORT FOR THIN PANEL 024200008
062-02-327-00	17	18	==	SCREW M6x10
062-02-116-00	17	19	==	PLAIN WASHER DN6
062-02-854-00	17	20	==	GUIDE FOR THIN PANEL 024200009
062-02-227-00	17	21	==	LEFT BRACKET 024201004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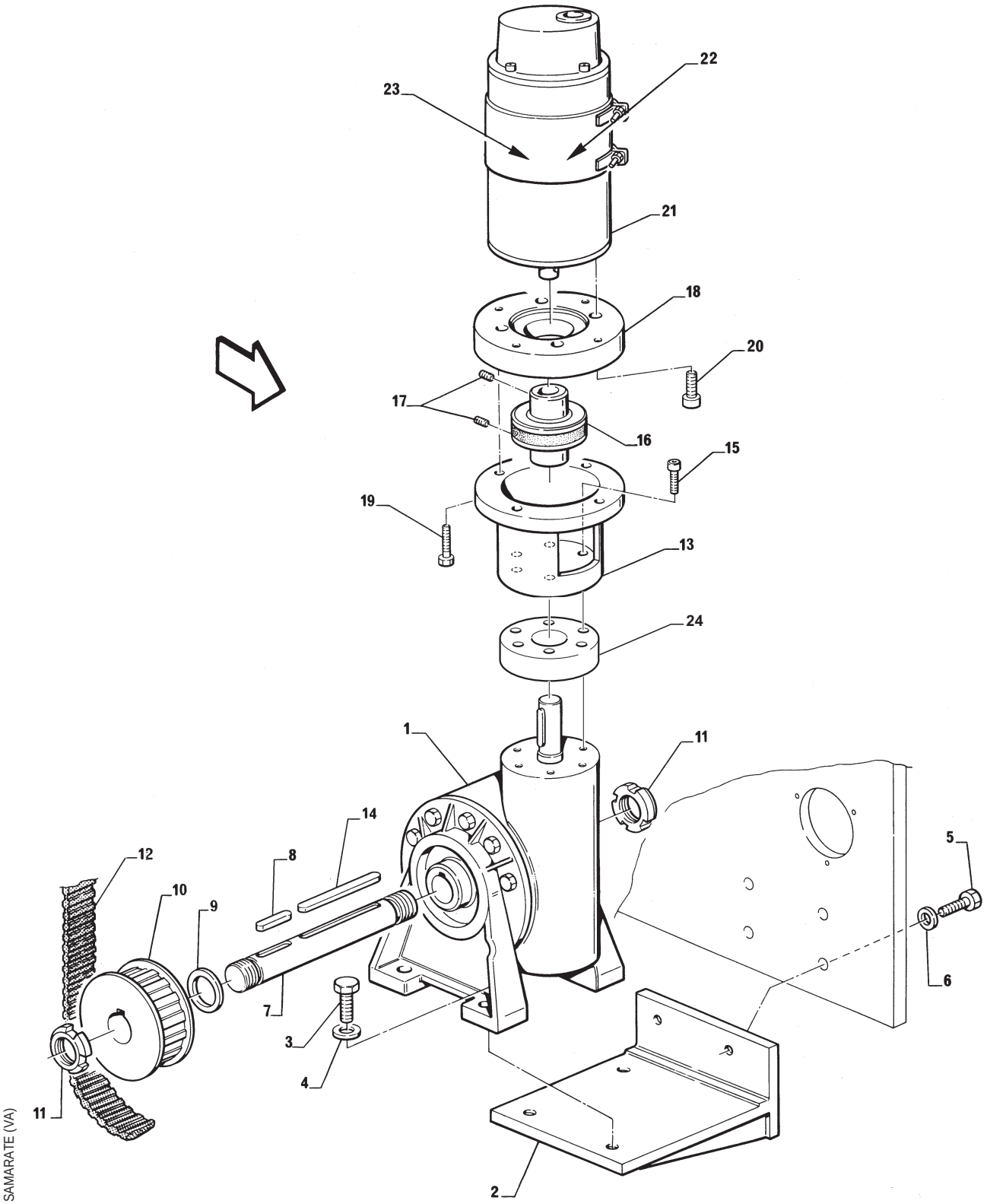
PART NUMBER	TAB.	POS.	SERIAL NUMBER	DESCRIPTION
062-12-045-00	18	1	==	REDUCTION GEAR BONFIGLIOLI TYPE VF 63/V - R 1:100
062-12-046-00	18	2	==	GEARMOTOR SUPPORT 022501001
062-02-169-00	18	3	==	HEX. HEAD SCREW M10x30
062-02-136-00	18	4	==	PLAIN WASHER DN10
062-02-407-00	18	5	==	HEX. HEAD SCREW M8x30
062-02-121-00	18	6	==	PLAIN WASHER DN8
062-12-047-00	18	7	==	SHAFT FOR GEARMOTOR 022501003
062-12-048-00	18	8	==	TANG 8x7x37
062-02-411-00	18	9	==	SPACER 022500004
062-02-412-00	18	10	==	PULLEY FOR GEARMOTOR 022500002
062-02-086-00	18	11	==	SELF-LOCKING RING NUT GUK M25x1,5
062-02-058-00	18	12	==	TOOTHED BELT 800 H100 DD
062-02-413-00	18	13	==	MOTORBELL 022500006
062-12-049-00	18	14	==	TANG 8x7x100
062-02-250-00	18	15	==	SCREW M6x20
062-12-050-00	18	16	==	GEARMOTOR JOINT 022500007
062-02-415-00	18	17	==	SCREW M6x8
062-12-051-00	18	18	==	MOTOR CONNECTION FLANGE 022500008
062-02-402-00	18	19	==	HEX. HEAD SCREW M6x25
062-02-417-00	18	20	==	SCREW M8x20
062-02-418-10	18	21	==	CONVEYOR MOTOR DRIVE SYSTEM 77S24DXX-AD3
062-02-418-11	18	22	==	CONVEYOR MOTOR BRUSHES R.92-G90/MP77
062-02-418-12	18	23	==	DYNAMO THACO BRUSHES DC10R
062-12-120-00	18	24	==	FLANGE FOR GEAR BOX 022500009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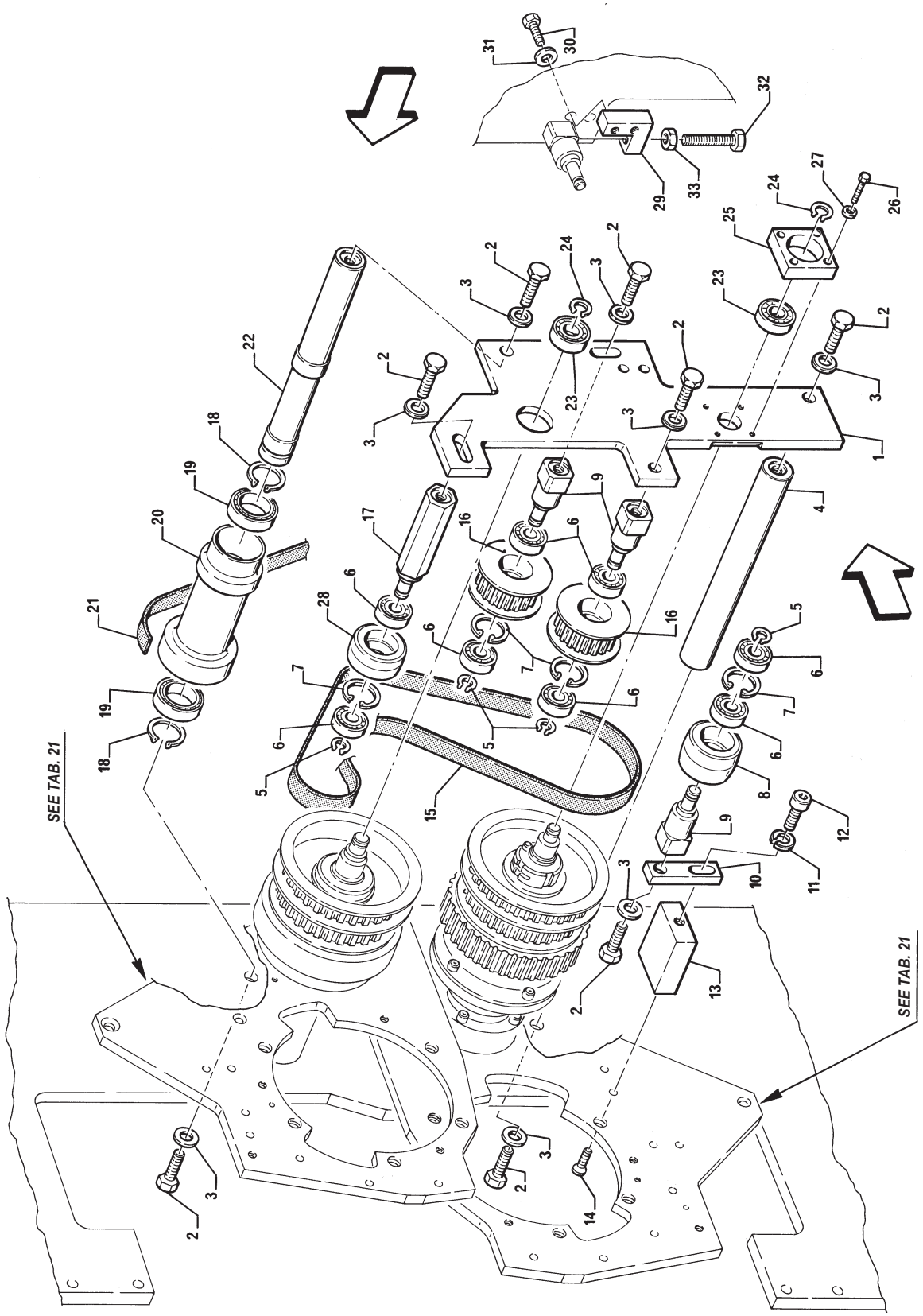
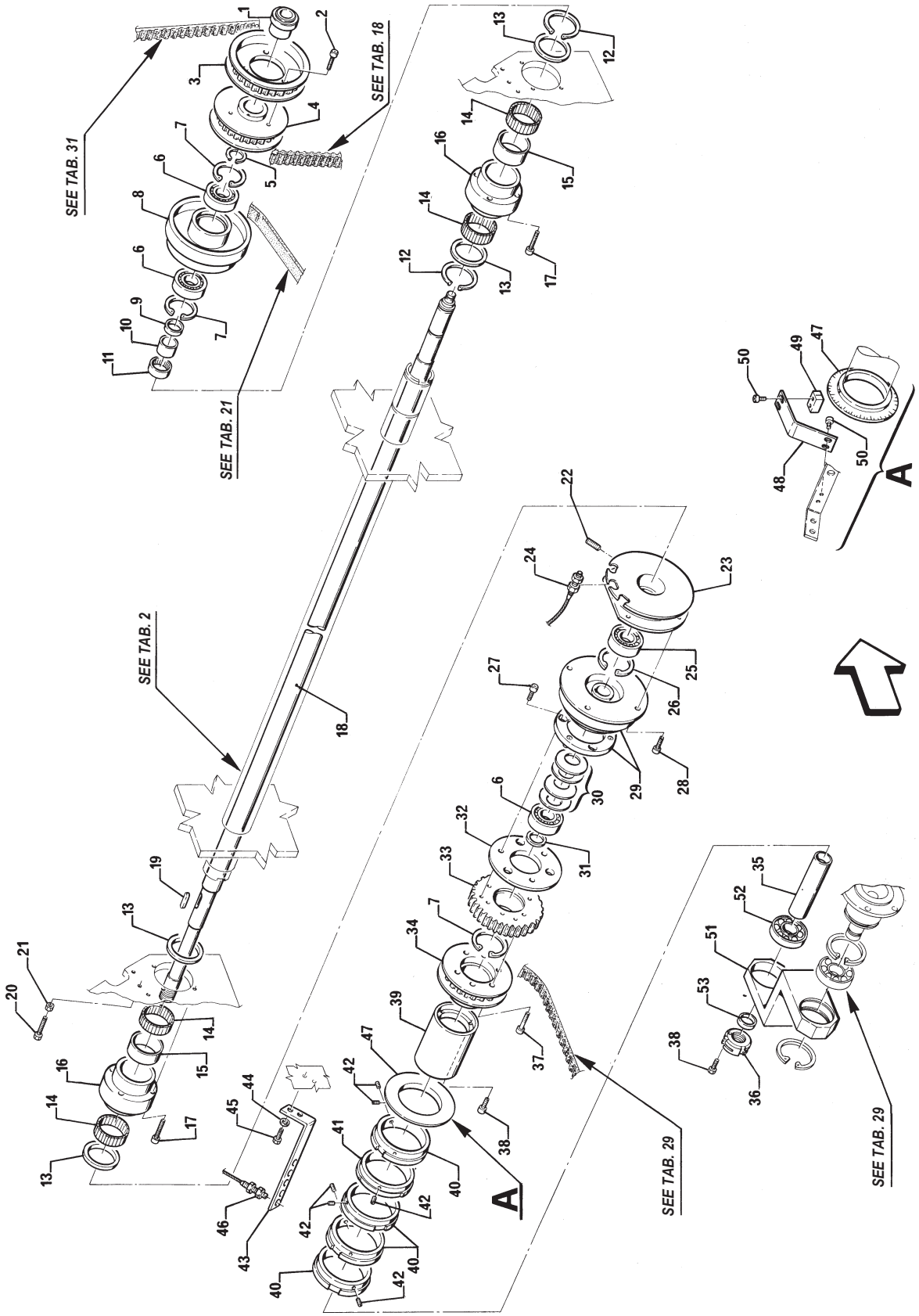
PART NUMBER	TAB.	POS.	SERIAL NUMBER	DESCRIPTION
062-02-419-00	19	1	==	SHAFT SUPPORT 022400001
062-02-420-00	19	2	==	HEX. HEAD SCREW M10x35
062-02-136-00	19	3	==	PLAIN WASHER DN10
062-02-421-00	19	4	==	STUD 022400002
062-02-067-00	19	5	==	SPRING RING E12
062-02-054-00	19	6	==	BEARING 6201-2RS1 ø 12-32-10
062-02-422-00	19	7	==	SPRING RING I32
062-02-423-00	19	8	==	WHEEL BELT TIGHTENING 022400006
062-02-424-00	19	9	==	PIN 022400004
062-02-425-00	19	10	==	WHEEL SUPPORT 022400011
062-02-426-00	19	11	==	SPRING WASHER DN10
062-02-427-00	19	12	==	SCREW M10x25
062-02-428-00	19	13	==	SPACER 022400010
062-02-429-00	19	14	==	SCREW M6x25
062-02-052-00	19	15	==	FLAT BELT HABASIT TYPE S.2 DEVELOPMENT 1015 mm - WIDTH 20 mm
062-02-430-00	19	16	==	TENSIONER 022400005
062-02-431-00	19	17	==	PIN 022400007
062-02-072-00	19	18	==	SPRING RING E30
062-02-056-00	19	19	==	BEARING ADR-AY30ZZ ø 30-47-9
062-02-432-00	19	20	==	CONTROL PULLEY OUTPUT ROLLER 022400009
062-02-053-00	19	21	==	FLAT BELT HABASIT TYPE S.2 LENGTH 440 mm - WIDTH 20 mm
062-02-433-00	19	22	==	STUD PULLEY SUPPORT 022400008
062-02-055-00	19	23	==	BEARING 6202-2RS1 ø 15-35-11
062-02-085-00	19	24	==	SPRING RING E15
062-02-434-00	19	25	==	LOWER CONTROL SHAFT SUPPORT 022400003
062-02-435-00	19	26	==	HEX. HEAD SCREW M5x25
062-02-176-00	19	27	==	PLAIN WASHER DN5
062-02-436-00	19	28	==	WHEEL BELT TIGHTENING 022400012
062-02-938-00	19	29	==	BLOCK FOR BELT-STRETCHER 024400013
062-02-658-00	19	30	==	SCREW M6x22
062-02-116-00	19	31	==	PLAIN WASHER DN6
062-02-939-00	19	32	==	SCREW M10x50
062-02-940-00	19	33	==	HEX. NUT M10 (LOW)


SEE TAB. 21
SEE TAB. 21

PART NUMBER	TAB.	POS.	SERIAL NUMBER	DESCRIPTION
062-02-437-01	20	1	==	CONNECTOR TOLLOK TLK 130
062-02-115-00	20	2	==	SCREW M6x25
062-02-438-00	20	3	==	TOOTHED PULLEY 017600003
062-02-439-00	20	4	==	TOOTHED PULLEY 017601004
062-02-081-00	20	5	==	SPRING RING E25
062-02-030-00	20	6	==	BEARING 6205-2RS ø 25-52-15
062-02-075-00	20	7	==	SPRING RING I52
062-02-440-00	20	8	==	PULLEY 017600005
062-02-441-00	20	9	==	SPACER 017600018
062-02-029-00	20	10	==	INTERIOR RING INA IR ø 25-30-20,5
062-02-028-00	20	11	==	BEARING BOX INA HK3016-2RS ø30-37-16
062-02-082-00	20	12	==	SPRING RING E50
062-02-442-00	20	13	==	SPACER 017600015
062-02-048-00	20	14	==	CAGE INA K 50-55-20
062-02-443-00	20	15	==	SPACER 017600014
062-02-444-00	20	16	==	SLEEVE 017600019
062-02-445-00	20	17	==	SCREW M6x40
062-02-446-00	20	18	==	UPPER CONTROL SHAFT 017600001
062-02-447-00	20	19	==	KEY TYPE B 8x7x25 STRAIGHT END
062-02-448-00	20	20	==	HEX. HEAD SCREW M5x35
062-12-213-00	20	21	==	HEX. NUT M5
062-02-450-00	20	22	==	SCREW M8x25
062-02-451-00	20	23	==	UPPER CLUTCH SUPPORT FLANGE 017600006
==	20	24	==	SEE TAB. 48
062-02-031-00	20	25	==	BEARING 6305-2RS ø 25-62-17
062-02-077-00	20	26	==	SPRING RING I63
062-02-452-00	20	27	==	SCREW M5x20
062-02-453-00	20	28	==	SCREW M5x12
062-02-817-00	20	29	==	ELECTROMAGNETIC CLUTCH TYPE C.09.03.110 24V DC
062-02-454-00	20	30	==	BELLEVILLE WASHER ø 50-25,4-1,25
062-02-455-00	20	31	==	SPACER 017600021
062-02-456-00	20	32	==	SPACER 017600010
062-02-457-00	20	33	==	GEAR Z = 60 017600009
062-02-144-00	20	34	==	TOOTHED PULLEY 017600013
062-02-941-00	20	35	==	SPACER 017601022
062-02-220-00	20	36	==	RING NUT 017600020
062-02-206-00	20	37	==	SCREW M6x25
062-02-738-00	20	38	==	HEX. HEAD SCREW M5x16
062-02-266-00	20	39	==	CAM SUPPORT SLEEVE 017600012
062-02-356-00	20	40	==	CAM 017600016
062-02-364-00	20	41	==	CAM 017600017
062-02-415-00	20	42	==	SCREW M6x8
062-02-369-00	20	43	==	SENSOR SUPPORT 019700005
062-02-116-00	20	44	==	PLAIN WASHER DN6
062-02-384-00	20	45	==	HEX. HEAD SCREW M6x15
==	20	46	==	SEE TAB. 48
062-02-870-00	20	47	==	CAM TIMING NONIUS 017600030
062-02-868-00	20	48	==	INDEX SUPPORT 019700019
062-02-869-00	20	49	==	INDEX 019700020
062-02-177-00	20	50	==	SCREW M5x10
062-02-942-00	20	51	==	UPPER CONNECTING ROD 017600031
062-02-943-00	20	52	==	BEARING 1205 ø 25-52-15
062-02-944-00	20	53	==	SPACER 017600026


SEE TAB. 31
SEE TAB. 18
SEE TAB. 21
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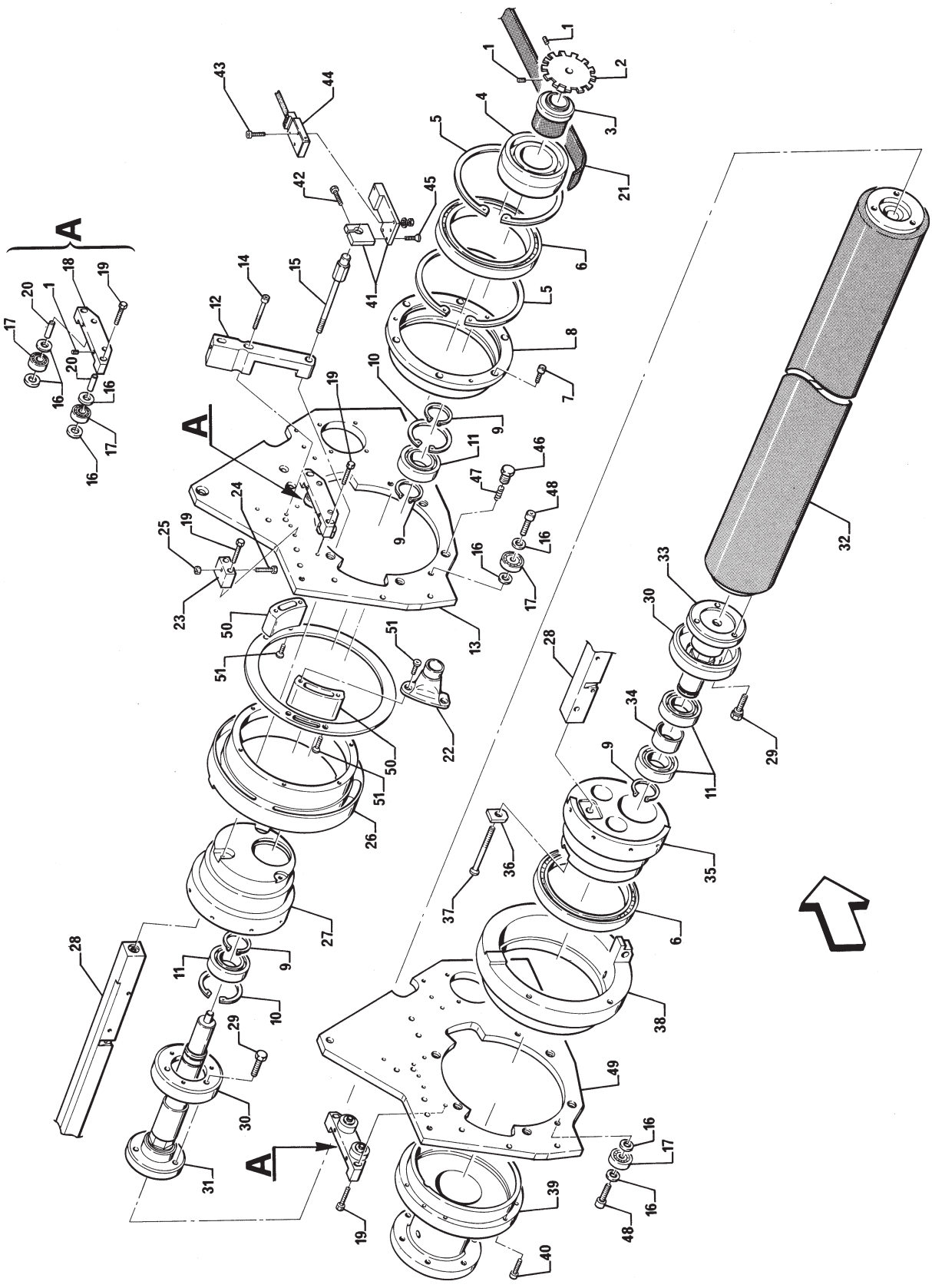
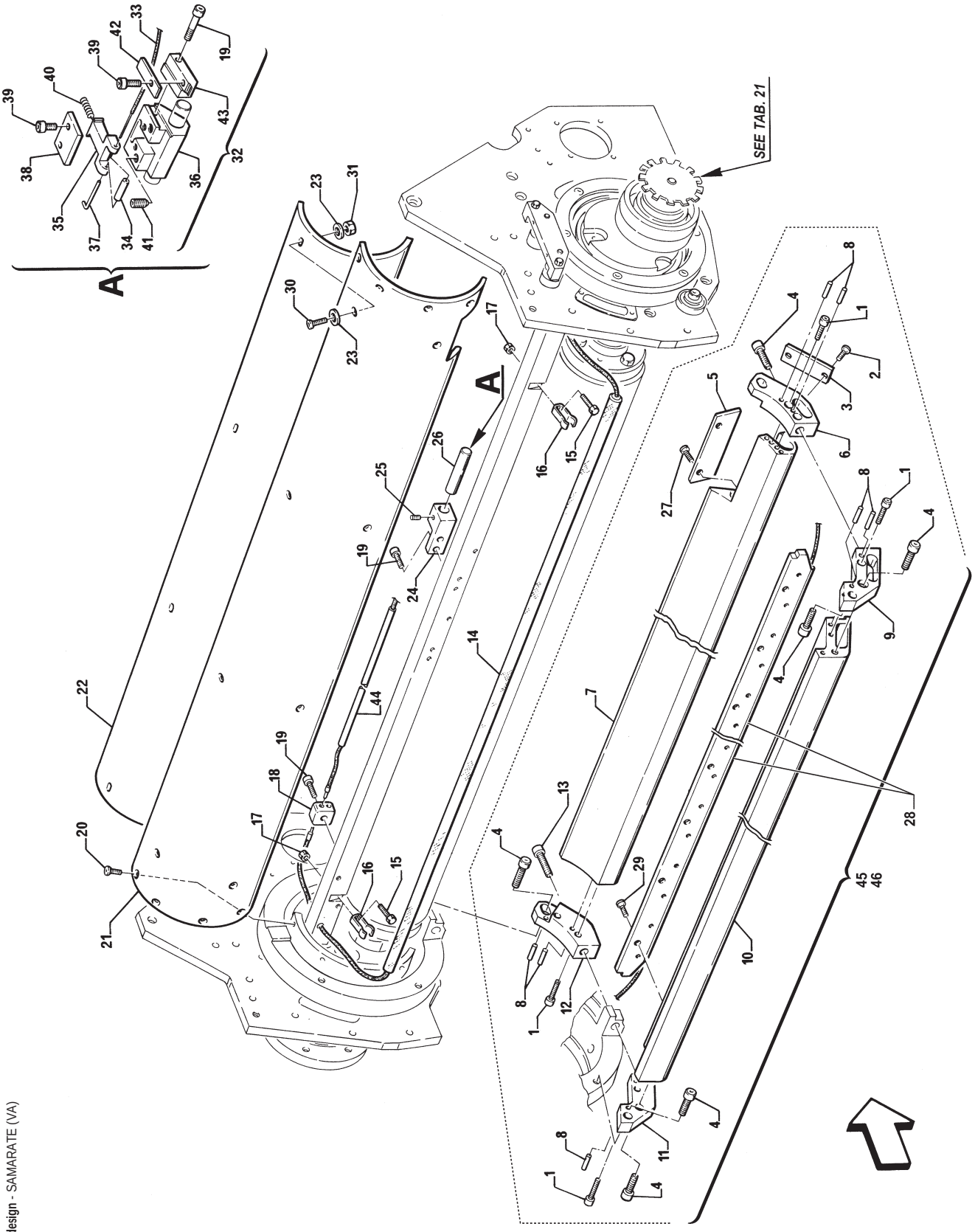
PART NUMBER	TAB.	POS.	SERIAL NUMBER	DESCRIPTION
062-02-190-00	21	1	==	SCREW M6x6
062-02-464-00	21	2	==	ENCODER PLATE 017500050
062-02-437-01	21	3	==	CONNECTOR TOLLOK TLK 130
062-02-465-01	21	4	==	PULLEY 017501020
062-02-070-00	21	5	==	SPRING RING I140
062-02-466-00	21	6	==	BEARING 61822 ø 110-140-16
062-02-467-00	21	7	==	SCREW M5x12
062-02-468-00	21	8	==	RIGHT FLANGE 017500018
062-02-072-00	21	9	==	SPRING RING E30
062-02-071-00	21	10	==	SPRING RING I55
062-02-024-00	21	11	==	BEARING 6006-2Z ø 30-55-13
062-02-469-01	21	12	==	RETAINER ARM 017501006
062-02-470-00	21	13	==	OSCILLATING SHOULDER 017500005
062-02-251-00	21	14	==	SCREW M6x50
062-02-471-00	21	15	==	STUD 017500030
062-02-008-00	21	16	==	FIFTH WHEEL INA AS-0821
062-02-026-00	21	17	==	ROLLER INA NA 22/8-2RS ø 8-24-12
062-02-945-00	21	18	==	BEARING SUPPORT 017500056
062-02-905-00	21	19	==	SCREW M6x35
062-02-946-00	21	20	==	PARALLEL PIN ø 8hx8x25
062-02-106-00	21	21	==	FLAT BELT HABASIT TYPE S2 L25x715
062-02-493-00	21	22	==	EXHAUST STUB 017500049
062-02-948-00	21	23	==	ADJUSTER SUPPORT 017500055
062-02-402-00	21	24	==	SCREW M6x25
062-02-246-00	21	25	==	HEX. NUT M6
062-02-473-00	21	26	==	RIGHT UPPER FLANGE 017500002
062-02-474-00	21	27	==	SUPPORT 017500003
062-02-475-00	21	28	==	SUPPORTS CONNECTION CROSS BRACE 017500044
062-02-407-00	21	29	==	HEX. HEAD SCREW M8x30
062-02-476-00	21	30	==	CENTER RING 017500012
062-02-477-00	21	31	==	RIGHT UPPER PIN 0175 00 011
062-02-200-00	21	32	==	LAMINATION ROLL 017500007
062-02-478-00	21	33	==	LEFT UPPER PIN 017500009
062-02-479-00	21	34	==	SPACER
062-02-480-00	21	35	==	SUPPORT 017500004
062-02-481-00	21	36	==	WASHER 017500026
062-02-482-00	21	37	==	SCREW M8x75
062-02-483-00	21	38	==	LEFT UPPER FLANGE 017500028
062-02-484-00	21	39	==	LEFT FLANGE 017500017
062-02-452-00	21	40	==	SCREW M5x20
062-02-485-00	21	41	==	BLOCK 017500027
062-02-486-00	21	42	==	HEX. HEAD SCREW M4x16
062-02-254-00	21	43	==	SCREW M3x20
==	21	44	==	SEE TAB. 48
062-02-487-00	21	45	==	SCREW M3x10
062-02-488-00	21	46	==	SPRING SUPPORT 017500036
062-02-489-00	21	47	==	SPRING CIMA CO 2022
062-02-184-00	21	48	==	SCREW M8x25
062-02-490-00	21	49	==	OSCILLATING SHOULDER 017500005A
062-02-491-00	21	50	==	UPPER VACUUM COLLECTOR 017500047
062-02-492-00	21	51	==	SCREW M4x20



PART NUMBER	TAB.	POS.	SERIAL NUMBER	DESCRIPTION
062-02-175-00	22	1	==	SCREW M5x25
062-02-245-00	22	2	==	SCREW M4x10
062-02-504-00	22	3	==	PLATE 017500041
062-02-265-00	22	4	==	SCREW M8x30
062-02-505-00	22	5	==	PLATE 017500042
062-02-506-00	22	6	==	OPEN FLANGE FOR VACUUM SHOE 017500038
062-02-507-00	22	7	==	UPPER VACUUM SHOE 017500014
062-02-950-00	22	8	==	SETTING PIN 4x25
062-02-509-00	22	9	==	OPEN FLANGE FOR SECTOR 017500033
062-02-510-00	22	10	==	VACUUM SECTOR 017500013
062-02-511-00	22	11	==	CLOSE FLANGE FOR SECTOR 017500032
062-02-512-00	22	12	==	CLOSE FLANGE FOR SHOE 017500037
062-02-513-00	22	13	==	SCREW M8x65
062-02-818-00	22	14	==	2100W MONOTUBE IR LAMP L=840 220-240V
062-02-514-00	22	15	==	HEX. HEAD SCREW M4x20
062-02-515-00	22	16	==	LAMP SUPPORT TYPE 09759292
062-12-213-00	22	17	==	HEX. NUT M5
062-02-820-00	22	18	==	CERAMIC TERMINAL BLOCK 20x20
062-02-225-00	22	19	==	SCREW M4x20
062-02-287-00	22	20	==	SCREW M5x10
062-02-517-00	22	21	==	FILM SUPPORT SECTOR 017500016
062-02-518-00	22	22	==	HEAT PROTECTION DOME 017500025
062-02-176-00	22	23	==	PLAIN WASHER DN5
062-02-519-00	22	24	==	THERMOCOUPLE SUPPORT 017500051
062-02-415-00	22	25	==	SCREW M6x8
062-02-520-00	22	26	==	PIN FOR THERMOCOUPLE 017500052
062-02-521-00	22	27	==	SCREW M3x6
062-02-522-00	22	28	==	TACKING BAR 017500015
062-02-523-00	22	29	==	SCREW M6x12
062-02-313-00	22	30	==	SCREW M5x20
062-12-213-00	22	31	==	HEX. NUT M5
062-02-830-00	22	32	==	ASSEMBLED THERMOCOUPLE 05500187
062-02-829-00	22	33	==	THERMOCOUPLE PROBE 0187.00.008
062-02-824-00	22	34	==	COPPER ROLL 0187.00.001
062-02-828-00	22	35	==	ROLLER SUPPORT 0187.00.003 (ARNITE)
062-02-827-00	22	36	==	MAIN SUPPORT 0187.00.004
062-02-825-00	22	37	==	STEEL SETTING PIN 0187.00.002
062-02-821-00	22	38	==	PLATE 0187.00.005
062-02-241-00	22	39	==	SCREW M4x10
062-02-819-00	22	40	==	SPRING L = 24, ø 4, WIRE ø0.4
062-02-186-00	22	41	==	SCREW M6x10
062-02-822-00	22	42	==	PLATE 0187.00.007
062-02-826-00	22	43	==	SUPPORT 0187.00.006
062-02-949-00	22	44	==	WIRE HOLDER 017500054
062-22-002-00	22	45	==	SHOE AND SECTOR EXHAUST UPPER ASSY 06200414 (EUROPE)
062-22-002-01	22	46	==	SHOE AND SECTOR EXHAUST UPPER ASSY 06200414 (USA)


SEE TAB. 21
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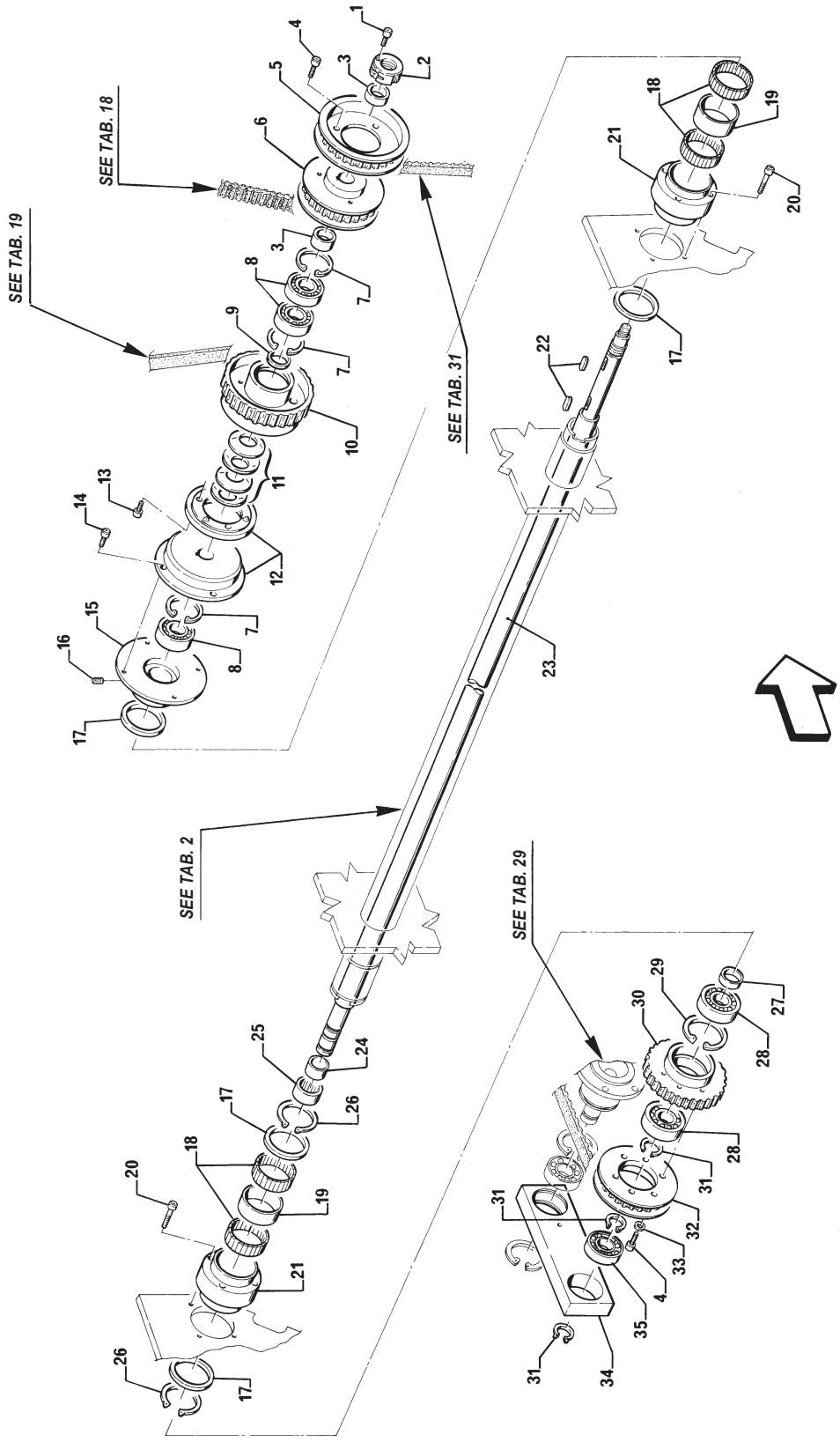
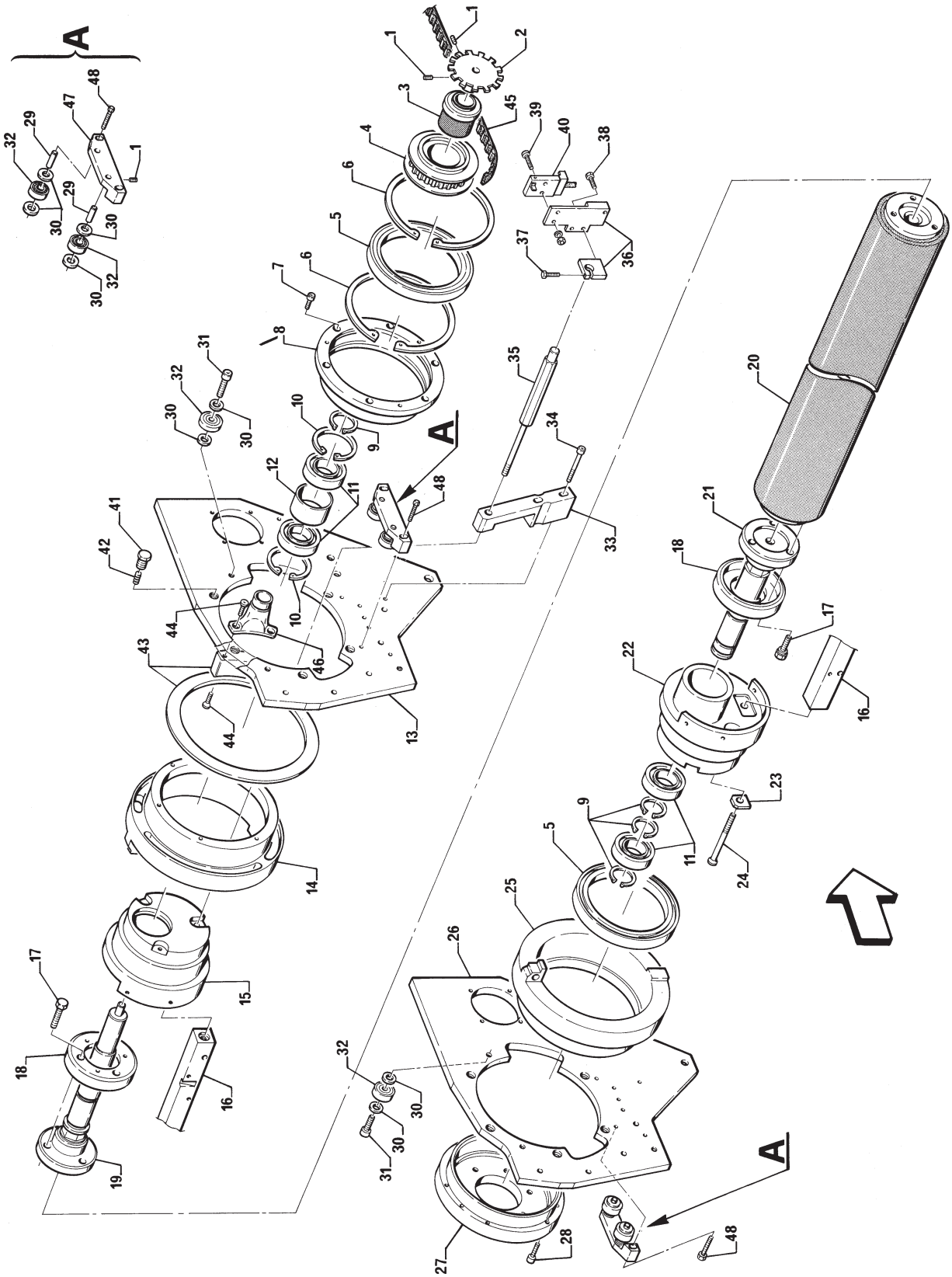
PART NUMBER	TAB.	POS.	SERIAL NUMBER	DESCRIPTION
062-02-217-00	23	1	==	SCREW M5x15
062-02-220-00	23	2	==	RING NUT 017600020
062-02-441-00	23	3	==	SPACER 017600018
062-02-115-00	23	4	==	SCREW M6x25
062-02-438-00	23	5	==	TOOTHED PULLEY 017600003
062-02-458-00	23	6	==	TOOTHED PULLEY 017600008
062-02-075-00	23	7	==	SPRING RING I52
062-02-030-00	23	8	==	BEARING 6205-2RS ø25-52-15
062-02-455-00	23	9	==	SPACER 017600021
062-02-459-00	23	10	==	PULLEY 017600029
062-02-454-00	23	11	==	BELLEVILLE WASHER ø50-25,4-1,25
062-02-815-00	23	12	==	ELECTROMAGNETIC CLUTCH TYPE T.08.07.110 24V DC
062-02-453-00	23	13	==	SCREW M5x12
062-02-460-00	23	14	==	SCREW M6x12
062-02-461-00	23	15	==	LOWER CLUTCH SUPPORT FLANGE 017600007
062-02-462-00	23	16	==	SCREW M8x12
062-02-442-00	23	17	==	SPACER 017600015
062-02-048-00	23	18	==	CAGE INA K50-55-20
062-02-443-00	23	19	==	SPACER 017600014
062-02-445-00	23	20	==	SCREW M6x40
062-02-444-00	23	21	==	SLEEVE 017600019
062-02-447-00	23	22	==	KEY TYPE B 8x7x25 STRAIGHT END
062-02-463-00	23	23	==	LOWER CONTROL SHAFT 017600002
062-02-029-00	23	24	==	INTERIOR RING INA IR 25-30-20,5
062-02-028-00	23	25	==	BEARING BOX INA HK3016-2RS ø30-37-16
062-02-082-00	23	26	==	SPRING RING E50
062-02-285-00	23	27	==	SPACER 017600026
062-02-031-00	23	28	==	BEARING 6305-2RS ø25-62-17
062-02-077-00	23	29	==	SPRING RING I63
062-02-342-00	23	30	==	GEAR Z60 017600011
062-02-081-00	23	31	==	SPRING RING E25
062-02-351-00	23	32	==	TOOTHED PULLEY 017600025
062-02-116-00	23	33	==	PLAIN WASHER DN6
062-02-951-00	23	34	==	LOWER CONNECTING ROD 017600032
062-02-943-00	23	35	==	BEARING 1205 ø25-52-15


SEE TAB. 18
SEE TAB. 19
SEE TAB. 31
SEE TAB. 2
SEE TAB. 29

PART NUMBER	TAB.	POS.	SERIAL NUMBER	DESCRIPTION
062-02-190-00	24	1	==	SCREW M6x6
062-02-464-00	24	2	==	ENCODER PLATE 017500050
062-02-437-01	24	3	==	CONNECTOR TOLLOK TLK130
062-02-754-00	24	4	==	PULLEY 017501022
062-02-466-00	24	5	==	BEARING 61822 ø110-140-16
062-02-070-00	24	6	==	SPRING RING I140
062-02-467-00	24	7	==	SCREW M5x12
062-02-468-00	24	8	==	RIGHT FLANGE 017500018
062-02-072-00	24	9	==	SPRING RING E30
062-02-071-00	24	10	==	SPRING RING I55
062-02-024-00	24	11	==	BEARING 6006-2Z ø30-55-13
062-02-479-00	24	12	==	SPACER
062-02-490-00	24	13	==	OSCILLATING SHOULDER 017500005A
062-02-494-00	24	14	==	RIGHT LOWER FLANGE 017500001
062-02-495-00	24	15	==	SUPPORT 017500004A
062-02-475-00	24	16	==	SUPPORTS CONNECTION CROSS BRACE 017500044
062-02-407-00	24	17	==	HEX. HEAD SCREW M8x30
062-02-476-00	24	18	==	CENTER RING 017500012
062-02-496-00	24	19	==	RIGHT LOWER PIN 017500010
062-02-200-00	24	20	==	LAMINATION ROLL 017500007
062-02-497-00	24	21	==	LEFT LOWER PIN 017500008
062-02-474-00	24	22	==	SUPPORT 017500003
062-02-481-00	24	23	==	WASHER 017500026
062-02-482-00	24	24	==	SCREW M8x75
062-02-498-00	24	25	==	LEFT LOWER FLANGE 017500029
062-02-470-00	24	26	==	OSCILLATING SHOULDER 017500005
062-02-499-00	24	27	==	FLANGE 017500023
062-02-500-00	24	28	==	SCREW M5x22
062-02-946-00	24	29	==	PARALLEL PIN 8h8x25
062-02-008-00	24	30	==	FIFTH WHEEL INA AS-0821
062-02-184-00	24	31	==	SCREW M8x25
062-02-026-00	24	32	==	ROLLER INA TYPE NA 22/8-2RS ø8-24-12
062-02-469-01	24	33	==	RETAINER ARM 017501006
062-02-251-00	24	34	==	SCREW M6x50
062-02-502-00	24	35	==	STUD 017500031
062-02-485-00	24	36	==	BLOCK 017500027
062-02-486-00	24	37	==	HEX. HEAD SCREW M4x16
062-02-487-00	24	38	==	SCREW M3x10
062-02-254-00	24	39	==	SCREW M3x20
==	24	40	==	SEE TAB. 48
062-02-488-02	24	41	==	SPRING SUPPORT 017500036
062-02-489-00	24	42	==	SPRING CIMA CO 2022
062-02-503-00	24	43	==	LOWER EXHAUST COLLECTOR 017500046
062-02-492-00	24	44	==	SCREW M4x20
062-02-105-00	24	45	==	TOOTHED BELT 285 L075
062-02-493-00	24	46	==	EXHAUST STUB 017500049
062-02-945-00	24	47	==	BEARING SUPPORT 017500056
062-02-905-00	24	48	==	SCREW M6x35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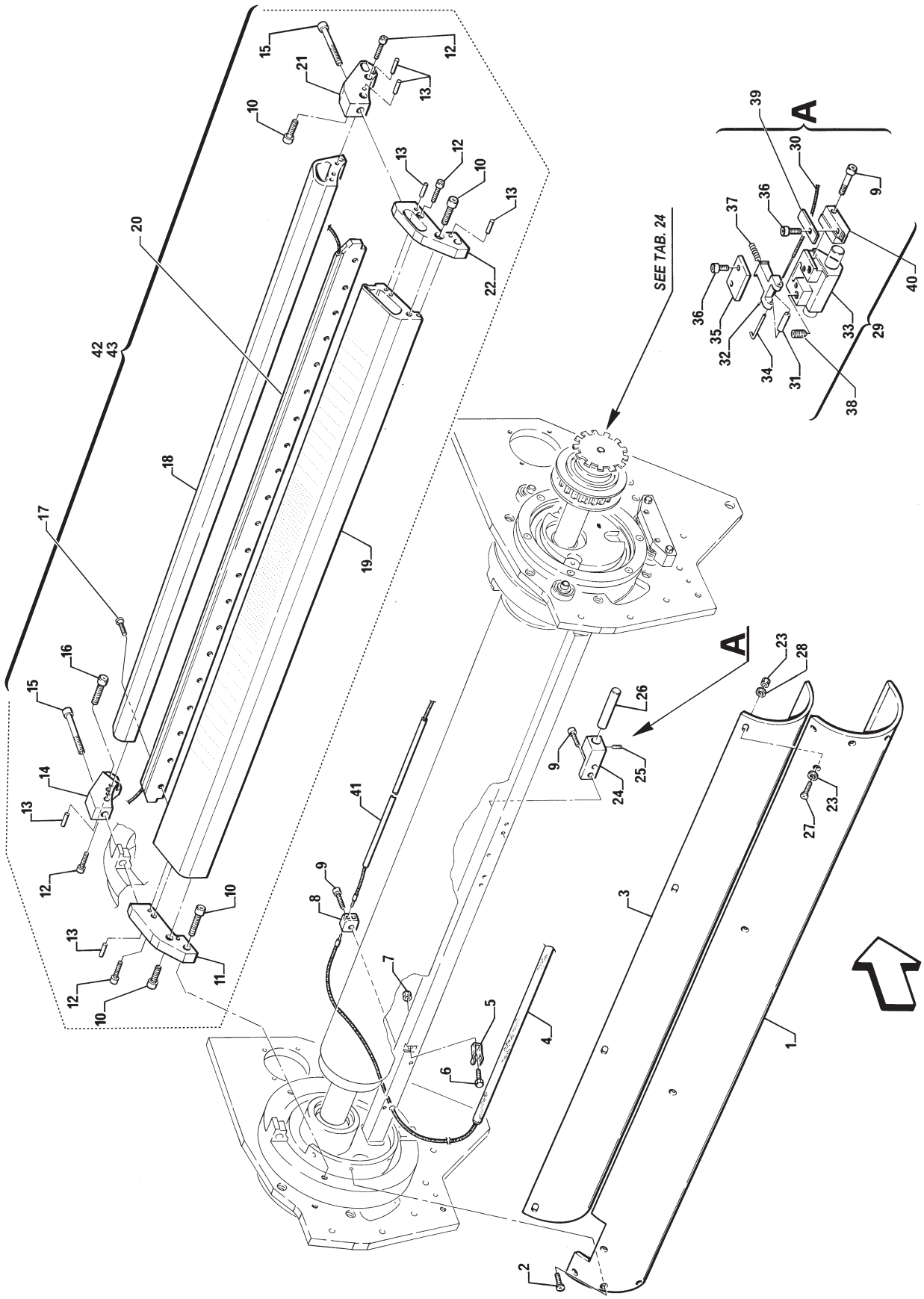
PART NUMBER	TAB.	POS.	SERIAL NUMBER	DESCRIPTION
062-02-517-00	25	1	==	FILM SUPPORT SECTOR 017500016
062-02-287-00	25	2	==	SCREW M5x10
062-02-518-00	25	3	==	HEAT PROTECTION DOME 017500025
062-02-818-00	25	4	==	2100W MONOTUBE IR LAMP L = 840 220-240V
062-02-515-00	25	5	==	LAMP SUPPORT TYPE 09759293
062-02-514-00	25	6	==	HEX. HEAD SCREW M4x20
062-12-213-00	25	7	==	HEX. NUT M5
062-02-820-00	25	8	==	CERAMIC TERMINAL BLOCK 20x20
062-02-255-00	25	9	==	SCREW M4x20
062-02-265-00	25	10	==	SCREW M8x30
062-02-524-00	25	11	==	CLOSED FLANGE FOR SECTOR 017500034
062-02-175-00	25	12	==	SCREW M5x25
062-02-950-00	25	13	==	SETTING PIN 4x25
062-02-525-00	25	14	==	LEFT FLANGE FOR SHOE 017500039
062-02-513-00	25	15	==	SCREW M8x65
062-02-233-00	25	16	==	SCREW M8x20
062-02-523-00	25	17	==	SCREW M6x12
062-02-526-00	25	18	==	LOWER SHOE 017500040
062-02-510-00	25	19	==	VACUUM SECTOR 017500013
062-02-522-00	25	20	==	TACKING BAR 017500015
062-02-512-00	25	21	==	CLOSED FLANGE FOR SHOE 017500037
062-02-527-00	25	22	==	OPEN FLANGE FOR SECTOR 017500035
062-02-176-00	25	23	==	PLAIN WASHER DN5
062-02-519-00	25	24	==	THERMOCOUPLE SUPPORT 017500051
062-02-415-00	25	25	==	SCREW M6x8
062-02-520-00	25	26	==	PIN FOR THERMOCOUPLE 017500052
062-02-313-00	25	27	==	SCREW M5x20
062-12-213-00	25	28	==	HEX. NUT M5
062-02-830-00	25	29	==	ASSEMBLED THERMOCOUPLE 05500187
062-02-829-00	25	30	==	THERMOCOUPLE PROBE 018700008
062-02-824-00	25	31	==	COPPER ROLLER 0187.00.001
062-02-828-00	25	32	==	ROLLER SUPPORT 0187.00.003 (ARNITE)
062-02-827-00	25	33	==	MAIN SUPPORT 0187.00.004
062-02-825-00	25	34	==	STEEL PIN 0187.00.002
062-02-821-00	25	35	==	PLATE 0187.00.005
062-02-241-00	25	36	==	SCREW M4x10
062-02-819-00	25	37	==	SPRING L = 24, ø = 4, WIRE ø = 0,4
062-02-186-00	25	38	==	SCREW M6x10
062-02-822-00	25	39	==	PLATE 0187.00.007
062-02-826-00	25	40	==	SUPPORT 0187.00.006
062-02-949-00	25	41	==	WIRE SUPPORT 017500054
062-22-003-00	25	42	==	LOWER SHOE AND SECTOR EXHAUST ASSY 06200415 (EUROPE)
062-22-003-01	25	43	==	NEW LOWER SHOE AND SECTOR EXHAUST 06200415 (USA)


SEE TAB. 24
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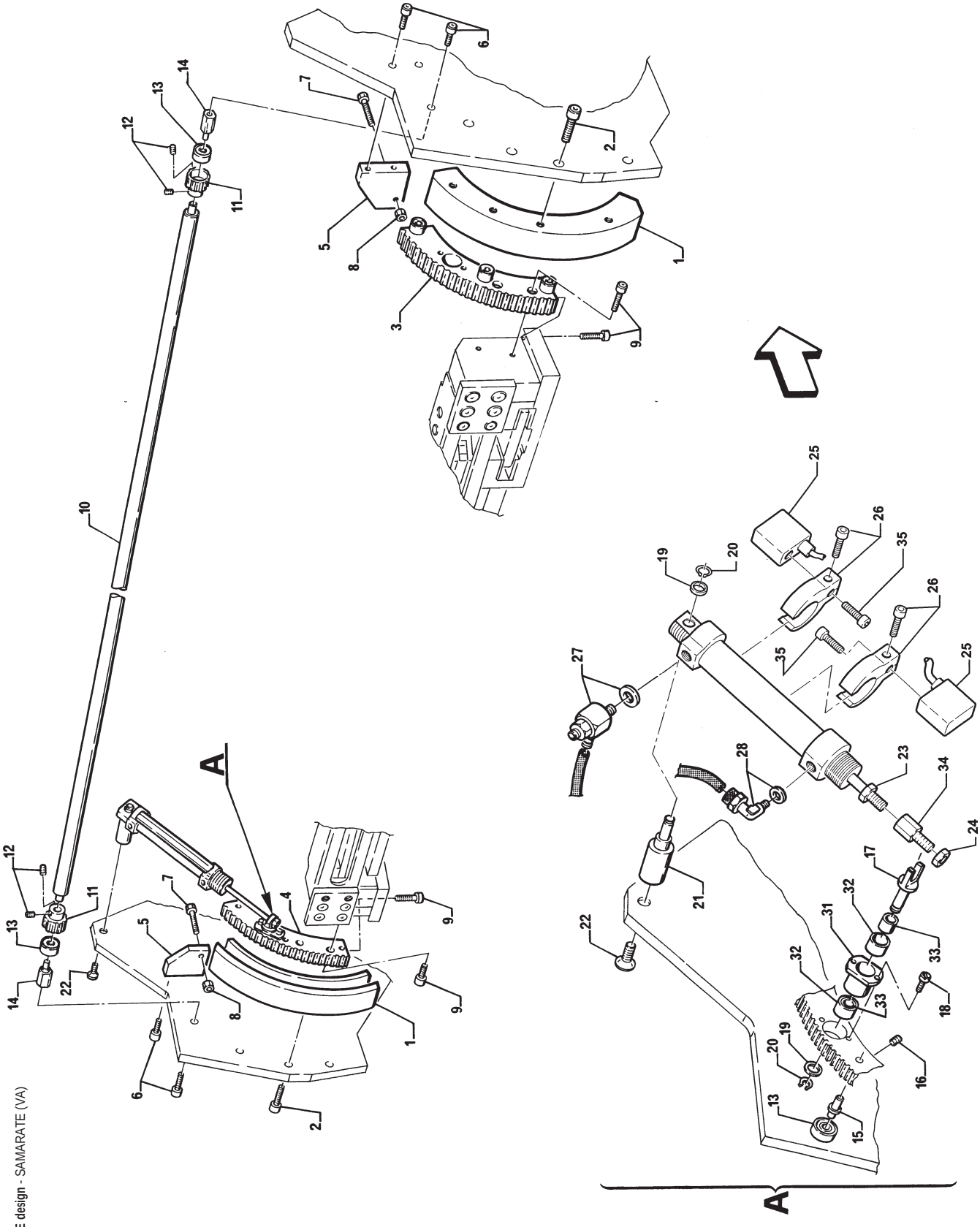
PART NUMBER	TAB.	POS.	SERIAL NUMBER	DESCRIPTION
062-02-528-00	26	1	==	SLIDE 017700041
062-02-115-00	26	2	==	SCREW M6x25
062-02-529-01	26	3	==	CUTTING DEVICE RIGHT SUPPORT 017701002
062-02-530-01	26	4	==	CUTTING DEVICE LEFT SUPPORT 017701001
062-02-531-00	26	5	==	TRAVEL STOP BLOCK 017700043
062-02-250-00	26	6	==	SCREW M6x20
062-02-242-00	26	7	==	SCREW M6x30
062-02-246-00	26	8	==	HEX. NUT M6
062-02-452-00	26	9	==	SCREW M5x20
062-02-532-00	26	10	==	SYNCHRONIZING SHAFT 017700027
062-02-533-00	26	11	==	GEAR 017700026
062-02-534-00	26	12	==	SCREW M5x6
062-02-014-00	26	13	==	BEARING 626-2RS ø6-19-6
062-02-535-00	26	14	==	BEARING SUPPORT PIN 017700025
062-02-536-00	26	15	==	BEARING SUPPORT PIN 017700044
062-02-537-00	26	16	==	SCREW M5x10
062-02-538-00	26	17	==	PIN FOR CYLINDER 017701003
062-02-900-00	26	18	==	SCREW M3x10
062-02-542-00	26	19	==	SHIM WASHER ø8/14/1
062-02-062-00	26	20	==	SPRING RING E8
062-02-539-00	26	21	==	PIN FOR CYLINDER 017700016
062-02-540-00	26	22	==	SCREW M8x20
062-01-008-01	26	23	==	CYLINDER 20x50 n. 0.822.333.203
062-02-267-00	26	24	==	HEX. NUT M8
062-01-008-02	26	25	==	SENSOR TYPE 0830.100.368
062-01-008-03	26	26	==	FIXING BRACKET 1827020068
062-01-002-00	26	27	==	UNION ELBOW 0821 200 103
062-01-009-00	26	28	==	RAPID UNION L-MC5 6/4 G1/8″
062-01-051-00	26	29	==	SUPPORT 1827020
062-02-286-00	26	30	==	SCREW M4x6
062-02-952-00	26	31	==	PIN HOLDER FLANGE 017700048
062-02-953-00	26	32	==	NEEDLE CASING INA TYPE HK ø12-16-10
062-02-954-00	26	33	==	INNER RING INA TYPE IR 8/12/10
062-01-008-04	26	34	==	HEAD FOR CYLINDER 017700181
062-02-690-00	26	35	==	SCREW M4x14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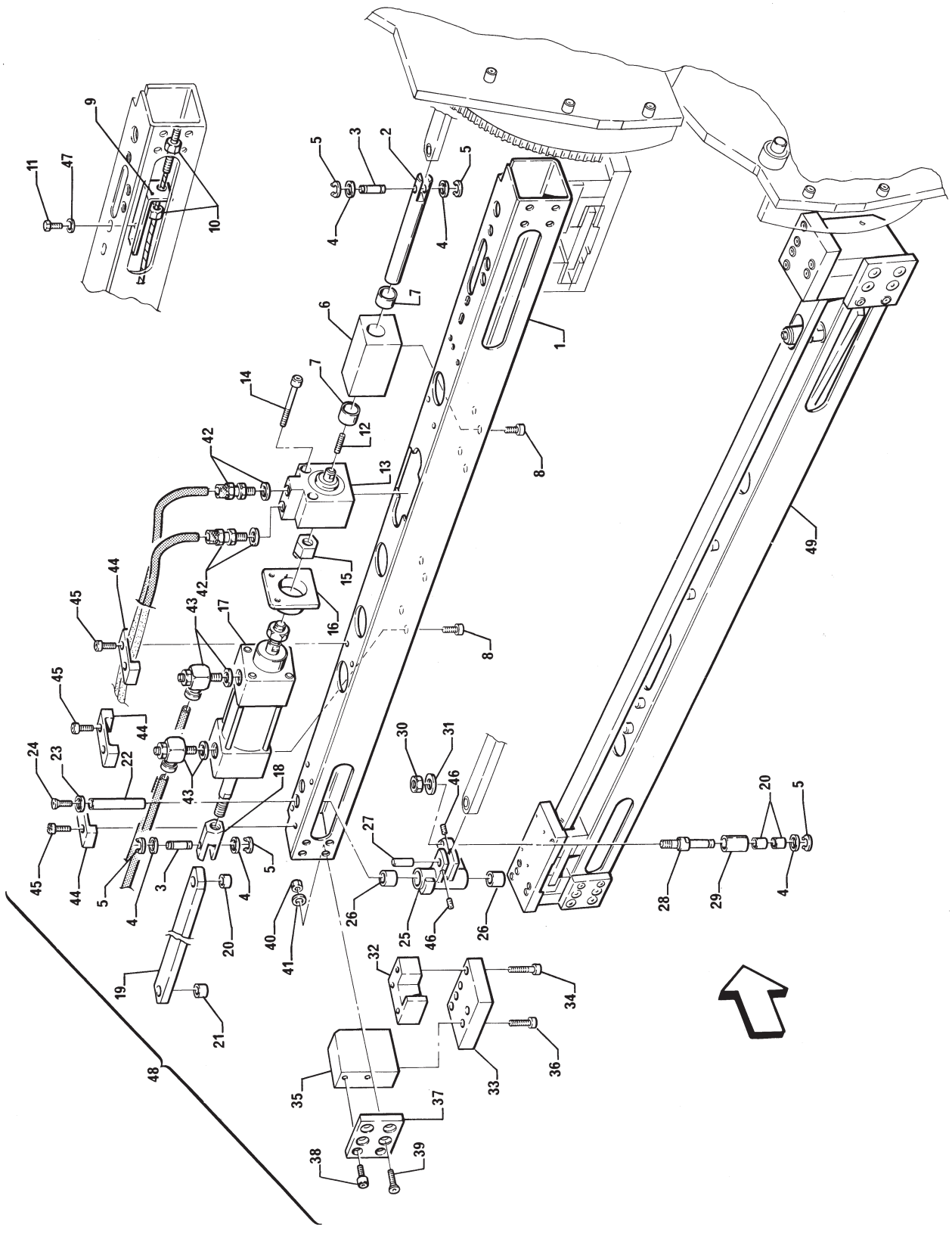
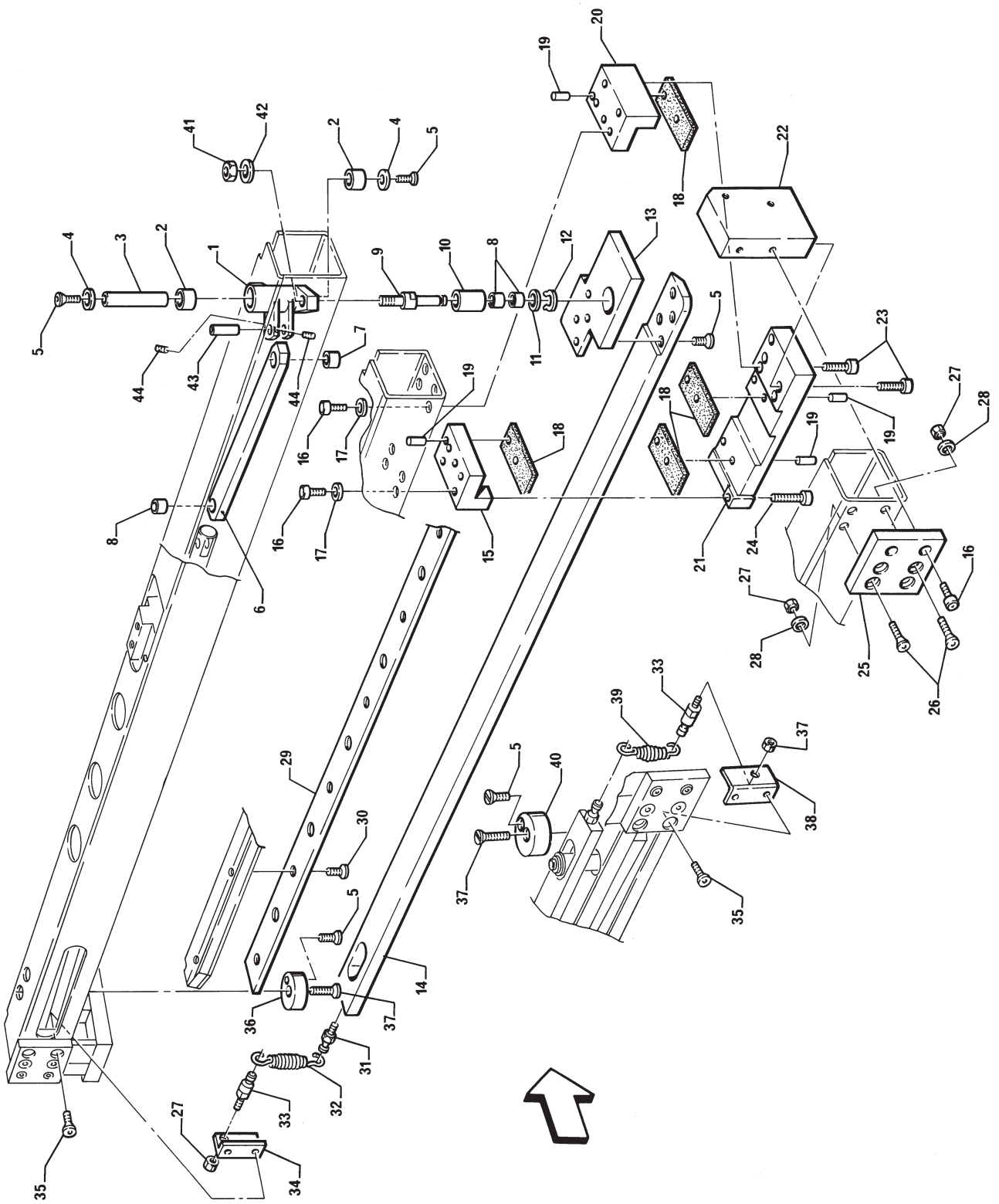
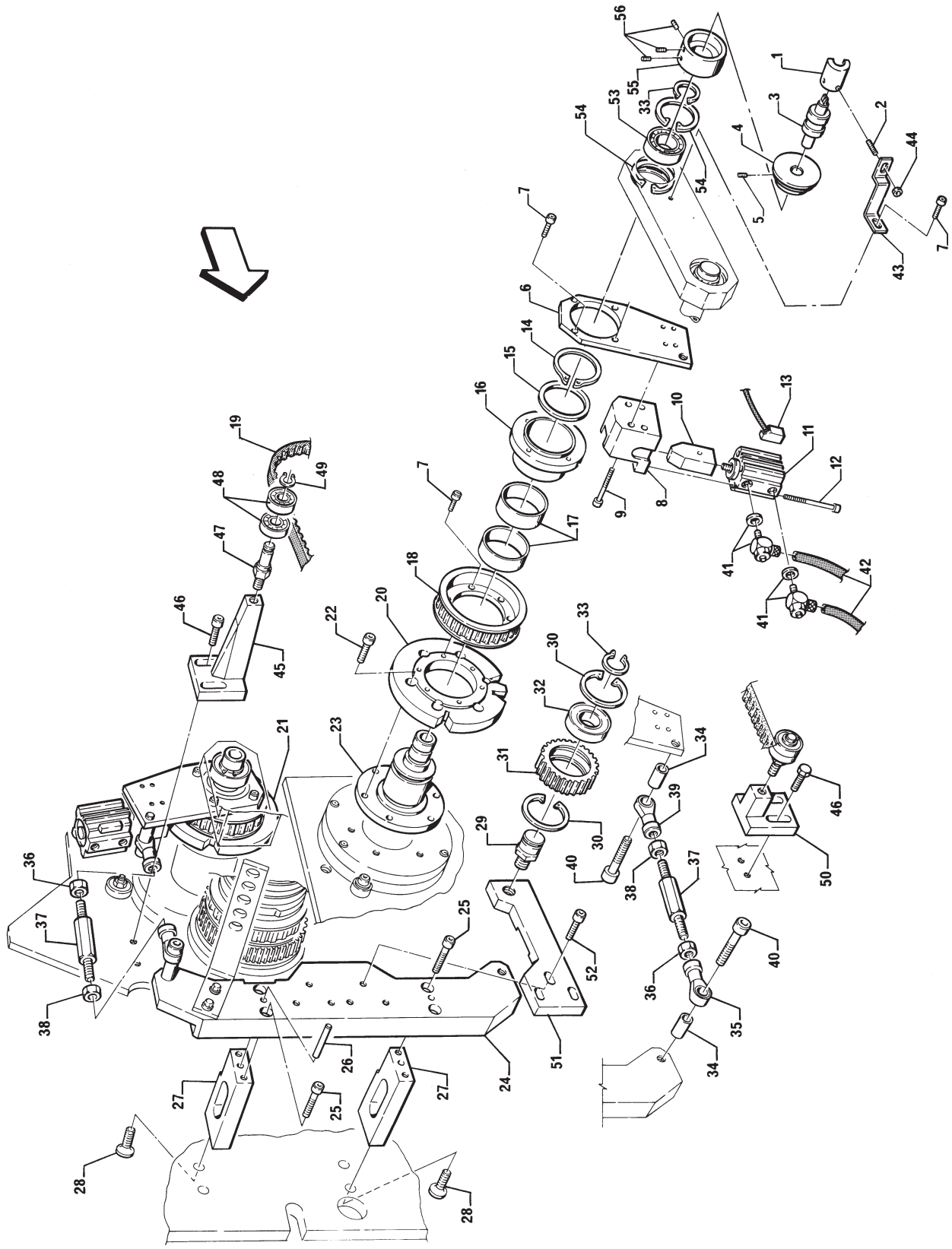
PART NUMBER	TAB.	POS.	SERIAL NUMBER	DESCRIPTION
062-02-543-00	27	1	==	SUPPORT CROSS BRACE 017700006
062-02-544-00	27	2	==	ROD 017700022
062-02-545-00	27	3	==	COTTER 017700024
062-02-546-00	27	4	==	SHIM WASHER ø8-14-1
062-02-062-00	27	5	==	SPRING RING E8
062-02-547-00	27	6	==	GUIDE BLOCK 017700023
062-02-036-00	27	7	==	BUSHING GLYCODUR PG161812F
062-02-177-00	27	8	==	SCREW M5x10
062-02-548-00	27	9	==	PROXIMITY SWITCH SUPPORT 017700028
==	27	10	==	SEE TAB. 48
062-02-399-00	27	11	==	HEX. SCREW M4x8
062-02-549-00	27	12	==	SCREW M6x20
062-01-010-00	27	13	==	CYLINDER 32 STROKE 10 0822.010.541 017700045
062-02-550-00	27	14	==	SCREW M5x45
062-02-551-00	27	15	==	NUT 017700013
062-12-121-00	27	16	==	CYLINDER CONNECTION FLANGE 017700014
062-01-011-00	27	17	==	CYLINDER 32 STROKE 25 0822.350.501 017700017
062-02-553-00	27	18	==	FORK 017700015
062-02-554-00	27	19	==	CONNECTING ROD 017700020
062-02-555-00	27	20	==	BUSHING GLYCODUR PG081008F
062-02-033-00	27	21	==	ROLLER BOX INA HK0808
062-02-556-00	27	22	==	STUD 017700011
062-02-557-00	27	23	==	WASHER 017700012
062-02-245-00	27	24	==	SCREW M4x10
062-02-558-00	27	25	==	ROCKER 017700018
062-02-035-00	27	26	==	ROLLER BOX INA HK1010
062-02-559-00	27	27	==	GROUND PIN 8x20
062-02-560-00	27	28	==	ROLLER PIN 017700019
062-02-561-00	27	29	==	ROLLER 017700009
062-02-246-00	27	30	==	HEX. NUT. M6
062-02-116-00	27	31	==	PLAIN WASHER DN6
062-02-562-00	27	32	==	BLOCK 017700034
062-02-563-00	27	33	==	FRONT PLATE 017701038
062-02-175-00	27	34	==	SCREW M5x25
062-02-564-00	27	35	==	LATERAL PLATE 017700004
062-02-452-00	27	36	==	SCREW M5x20
062-02-565-00	27	37	==	PLATE 017700033
062-02-453-00	27	38	==	SCREW M5x12
062-02-566-00	27	39	==	SCREW M5x16
062-02-213-00	27	40	==	HEX. NUT M5
062-02-176-00	27	41	==	PLAIN WASHER DN5
062-01-012-00	27	42	==	RAPID STRAIGHT UNION M C1 6/4 G1/8″
062-01-002-00	27	43	==	UNION ELBOW 0821 200 103
062-02-956-00	27	44	==	HOSE CLAMP 017700047
062-02-955-00	27	45	==	SCREW M3x15
062-02-957-00	27	46	==	SCREW M4x6
062-02-338-00	27	47	==	PLAIN WASHER DN4
062-02-865-00	27	48	==	COMPLETE UPPER CUTTING UNIT 06200177
062-02-866-00	27	49	==	COMPLETE LOWER CUTTING UNIT 06200178



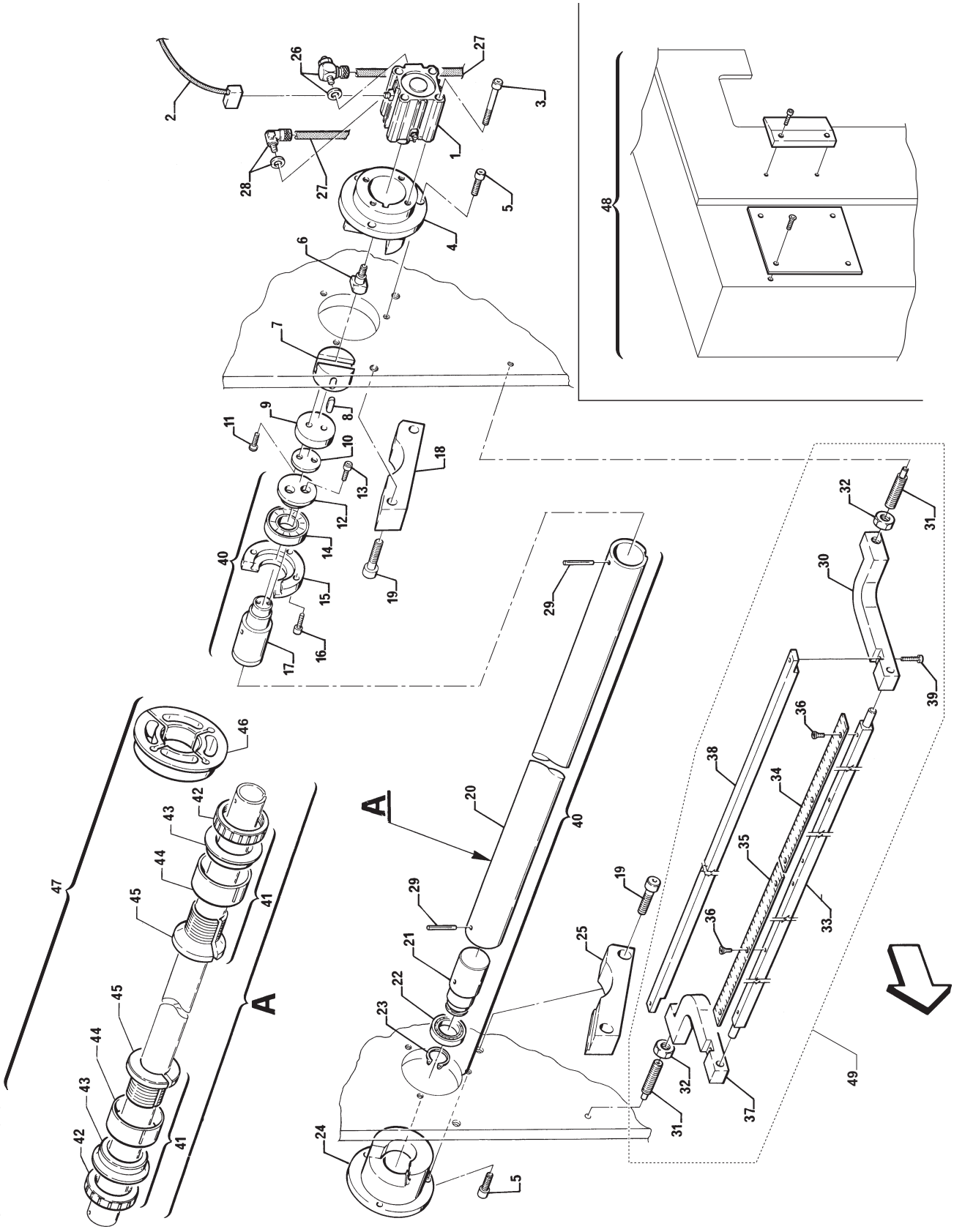
PART NUMBER	TAB.	POS.	SERIAL NUMBER	DESCRIPTION
062-02-558-00	28	1	==	ROCKER 017700018
062-02-035-00	28	2	==	BEARING BOX INA HK1010
062-02-556-00	28	3	==	STUD 017700011
062-02-557-00	28	4	==	WASHER 017700012
062-02-245-00	28	5	==	SCREW M4x10
062-02-569-00	28	6	==	CONNECTING ROD 017700021
062-02-033-00	28	7	==	BEARING BOX INA HK0808
062-02-555-00	28	8	==	BUSHING GLYCODUR PG081008F
062-02-560-00	28	9	==	ROLLER PIN 017700019
062-02-561-00	28	10	==	ROLLER 017700009
062-02-546-00	28	11	==	SHIM WASHER ø8-14-1
062-02-062-00	28	12	==	SPRING RING E8
062-02-570-00	28	13	==	MOVABLE BLADE HOLDER PLATE 017700010
062-02-571-00	28	14	==	MOVABLE BLADE 017700007
062-02-572-00	28	15	==	BLADE GUIDE BLOCK 017700036
062-02-453-00	28	16	==	SCREW M5x12
062-02-573-00	28	17	==	SPRING RING DN5
062-02-574-00	28	18	==	BLADE GUIDE SLIDE 017700032
062-02-575-00	28	19	==	SETTING PIN ø 3x12
062-02-576-00	28	20	==	BLADE GUIDE BLOCK 017700035
062-02-577-00	28	21	==	FRONT PLATE 017701037
062-02-578-00	28	22	==	LATERAL PLATE 017700005
062-02-452-00	28	23	==	SCREW M5x20
062-02-175-00	28	24	==	SCREW M5x25
062-02-565-00	28	25	==	PLATE 017700033
062-02-217-00	28	26	==	SCREW M5x15
062-02-213-00	28	27	==	HEX. NUT M5
062-02-176-00	28	28	==	PLAIN WASHER DN5
062-02-579-00	28	29	==	COUNTER BLADE 017700008
062-02-287-00	28	30	==	SCREW M5x10
062-02-580-00	28	31	==	PIN FOR SPRING 017701039
062-02-864-00	28	32	==	UPPER SECTION SPRING 017700120
062-02-582-00	28	33	==	PIN FOR SPRING 017701029
062-02-583-00	28	34	==	SPRING CONNECTION BRACKET 017701040
062-02-187-00	28	35	==	SCREW M5x12
062-02-584-00	28	36	==	BLADE SUPPORT PAD 017701031
062-02-492-00	28	37	==	SCREW M4x20
062-02-585-01	28	38	==	LOWER CONNECTION SPRING BRACKET 017701030
062-02-863-00	28	39	==	LOWER SECTION SPRING 017700119
062-02-587-00	28	40	==	LOWER BLADE SUPPORT PAD 017701031
062-02-246-00	28	41	==	HEX. NUT M6
062-02-116-00	28	42	==	PLAIN WASHER DN6
062-02-559-00	28	43	==	GROUND PIN ø 8x20
062-02-957-00	28	44	==	SCREW M4x6



PART NUMBER	TAB.	POS.	SERIAL NUMBER	DESCRIPTION
062-02-588-00	29	1	==	PLUG FOR ROTATING CONNECTOR 011300003
062-02-537-00	29	2	==	SCREW M5x10
062-00-018-00	29	3	==	ROTATING CONNECTOR 520 35A 240V
062-02-589-00	29	4	==	CONNECTION FOR ROTATING CONNECTOR 011300002
062-02-590-00	29	5	==	SCREW M5x14
062-02-591-00	29	6	==	INDEX SUPPORT 019700009
062-02-958-00	29	7	==	SCREW M6x20
062-02-592-00	29	8	==	INDEX GUIDE BLOCK 019700002
062-02-251-00	29	9	==	SCREW M6x50
062-02-593-00	29	10	==	CURSOR 019700001
062-01-013-00	29	11	==	CYLINDER D.E. TYPE ECDQ2B-32-20
062-02-594-00	29	12	==	SCREW M5x65
062-01-067-00	29	13	==	MAGNETIC SWITCH 24V - D-A-79 SMC
062-02-082-00	29	14	==	SPRING RING E50
062-02-442-00	29	15	==	SPACER 017600015
062-02-595-00	29	16	==	SLEEVE 019700011
062-02-048-00	29	17	==	ROLLER CAGE INA K50x55x20
062-02-596-00	29	18	==	PULLEY 019700004
062-02-049-00	29	19	==	TOOTHED BELT 270H075
062-02-597-00	29	20	==	LOWER INDEX DISK 019700014
062-02-598-00	29	21	==	UPPER INDEX DISK 019700015
062-02-184-00	29	22	==	SCREW M8x25
062-02-599-00	29	23	==	FLANGE 019701010
062-02-600-00	29	24	==	PLATE 019700008
062-02-229-00	29	25	==	SCREW M8x40
062-02-601-00	29	26	==	SETTING PIN ø 6x50
062-02-602-00	29	27	==	SPACER 019700007
062-02-603-00	29	28	==	SCREW M10x30
062-02-604-00	29	29	==	PIN FOR GEAR 019700016
062-02-080-00	29	30	==	SPRING RING I47
062-02-605-00	29	31	==	GEAR 019700006
062-02-047-00	29	32	==	BALL BEARING SKF 6005 2RS1 ø25-47-12
062-02-081-00	29	33	==	SPRING RING E25
062-02-606-00	29	34	==	SPACER 019700012
062-02-607-00	29	35	==	LEFT BALL JOINT M10
062-02-608-00	29	36	==	LEFT NUT 019700018
062-02-609-00	29	37	==	ROD 019700013
062-02-135-00	29	38	==	HEX. NUT M10
062-02-012-00	29	39	==	BALL JOINT (FEMALE THREAD) M10
062-02-610-00	29	40	==	SCREW M10x50
062-01-002-00	29	41	==	UNION ELBOW 0821 200 103
062-01-003-00	29	42	==	HOSE ø 6/4
062-02-959-00	29	43	==	ROTATING CONNECTOR STOP PLATE 019701003
062-02-213-00	29	44	==	HEX. NUT M5
062-02-858-00	29	45	==	UPPER CHAIN STRETCHER SUPPORT 019700022
062-02-354-00	29	46	==	HEX. SCREW M8x25
062-02-960-00	29	47	==	CHAIN STRETCHER PIN 019700023
062-02-102-00	29	48	==	BALL BEARING SKF 6201-2Z ø12-32-10
062-02-067-00	29	49	==	SPRING RING E12
062-02-857-00	29	50	==	LOWER CHAIN STRETCHER SUPPORT 019700021
062-02-852-00	29	51	==	GEAR PLATE 019700030
062-02-265-00	29	52	==	SCREW M8x30
062-02-030-00	29	53	==	BALL BEARING SKF 6205-2RS1 ø25-52-15
062-02-075-00	29	54	==	SPRING RING I52
062-02-961-00	29	55	==	ROTATING CONNECTOR SUPPORT FLANGE 019700031
062-02-190-00	29	56	==	SCREW M6x6



PART NUMBER	TAB.	POS.	SERIAL NUMBER	DESCRIPTION
062-01-013-00	30	1	==	CYLINDER D.E. TYPE SMC ECDQ2B ø 32 - STROKE 20
062-01-067-00	30	2	==	MAGNETIC SENSOR 24V - D.A. 79 SMC
062-02-611-00	30	3	==	SCREW M5x55
062-02-612-00	30	4	==	RIGHT SUPPORT 023800001
062-02-250-00	30	5	==	SCREW M6x20
062-02-613-00	30	6	==	PUSH ROD 023800005
062-02-614-00	30	7	==	FERODO SUPPORT 023800004
062-02-516-00	30	8	==	KEY 8x7x18
062-02-616-00	30	9	==	BRAKE PAD 023800007
062-02-617-00	30	10	==	WASHER 023800008
062-02-618-00	30	11	==	SCREW M4x16
062-02-619-01	30	12	==	DRUM 023801006
062-02-453-00	30	13	==	SCREW M5x12
062-02-100-01	30	14	==	BALL BEARING SKF 6004-2RS1 ø20-42-12
062-02-620-01	30	15	==	RING 023801002
062-02-217-00	30	16	==	SCREW M5x15
062-02-621-00	30	17	==	PIN 023800012
062-02-622-01	30	18	==	RIGHT CHUTE 023801010
062-02-232-00	30	19	==	SCREW M8x35
062-02-623-00	30	20	==	ROLL 023800013
062-02-624-00	30	21	==	PIN 023800009
062-02-099-00	30	22	==	BALL BEARING SKF 61805 ø25-37-7
062-02-081-00	30	23	==	SPRING RING E25
062-02-625-01	30	24	==	LEFT SUPPORT 023801003
062-02-626-01	30	25	==	LEFT CHUTE 023801011
062-01-002-00	30	26	==	UNION ELBOW 0821.200.103
062-01-003-00	30	27	==	HOSE ø 6/4
062-01-062-00	30	28	==	ELBOW UNION L-M CI 6/4 - G1/8″
062-02-962-00	30	29	==	SPRING PIN ø 5x40
062-02-963-00	30	30	==	LEFT SUPPORT 000011265
062-02-964-00	30	31	==	SET SCREW 024300003
062-02-135-00	30	32	==	HEX. NUT M10
062-02-880-00	30	33	==	BAR FOR SCALE 024300001
062-02-965-00	30	34	==	LEFT SCALE
062-02-966-00	30	35	==	RIGHT SCALE
062-02-967-00	30	36	==	SCREW M3x10
062-02-968-00	30	37	==	RIGHT SUPPORT 000011349
062-02-881-00	30	38	==	CROSS 024300002
062-02-177-00	30	39	==	SCREW M5x10
062-02-874-00	30	40	==	ASSEMBLED REEL SHAFT
062-12-035-00	30	41	==	CHUCH CORE 3″ FOR DRY FILM COIL ASSY
062-12-036-00	30	42	==	THREADED RING NUT FOR DRY FILM COIL CHUCH CORE
062-12-037-00	30	43	==	CONIC RING FOR DRY FILM COIL CHUCH CORE
062-12-038-00	30	44	==	EXPANSION RING 3″ FOR DRY FILM COIL CHUCH CORE
062-12-039-00	30	45	==	THREADED BUSHING FOR DRY FILM COIL CHUCH CORE
062-12-040-00	30	46	==	EXPANSION RING 6″ FOR DRY FILM COIL CHUCH CORE
062-12-128-00	30	47	==	ASSEMBLED FILM COIL SUPPORT SHAFT WITH CHUCK CORES (6” AND 3”)
062-12-179-00	30	48	==	DRY FILM LOADER KIT 09800453
062-12-205-00	30	49	==	ROLL CENTERING DEVICE 06200243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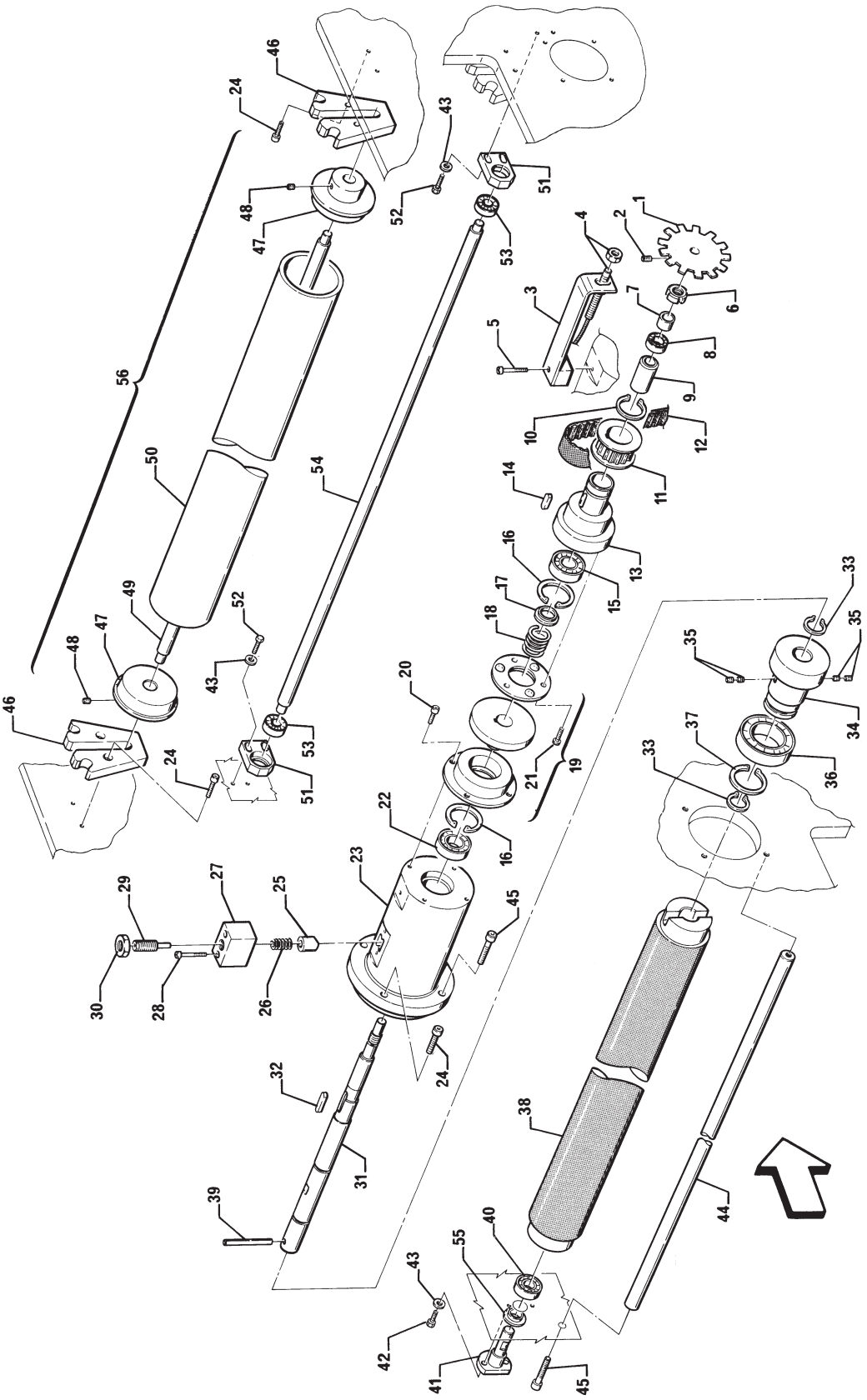
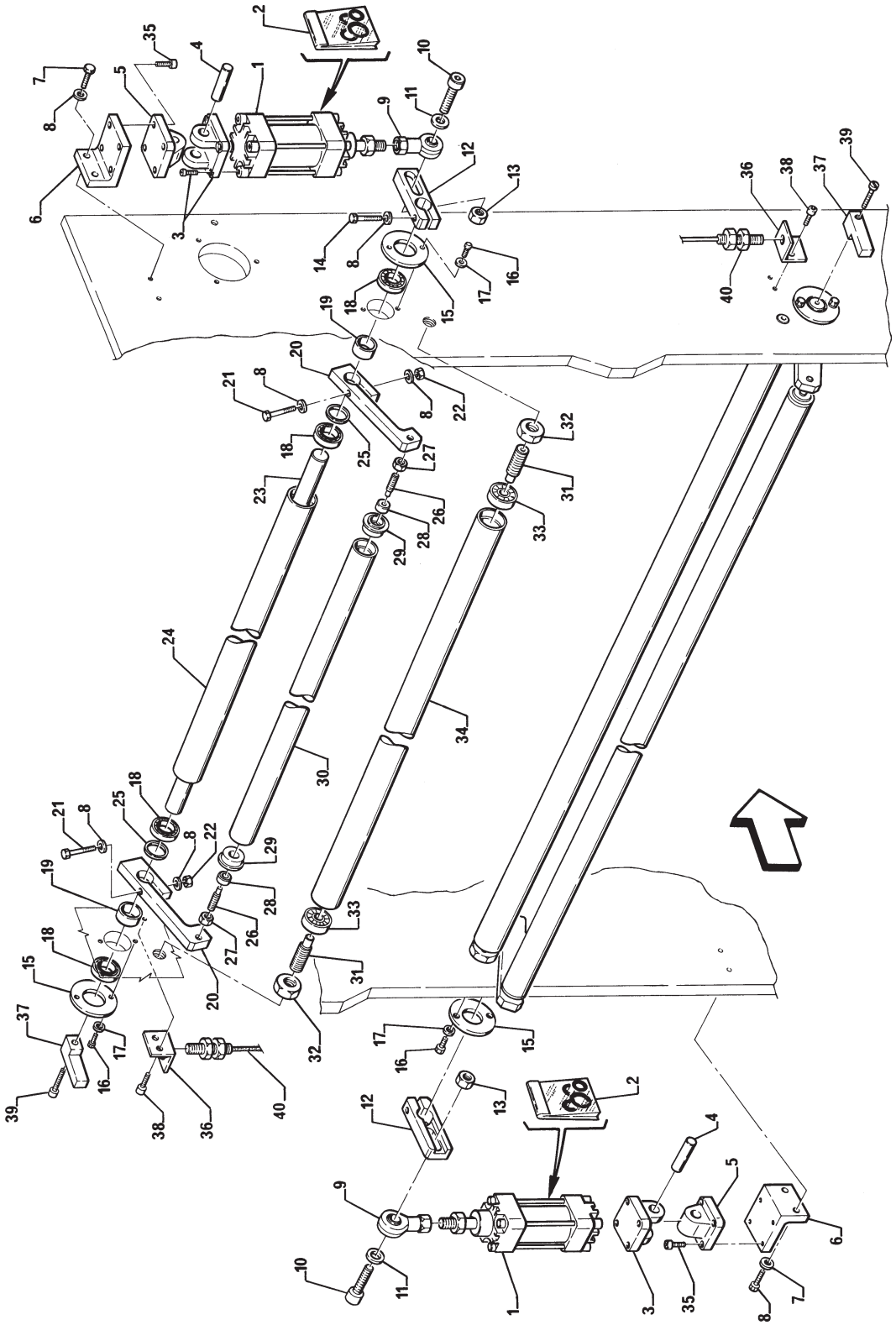
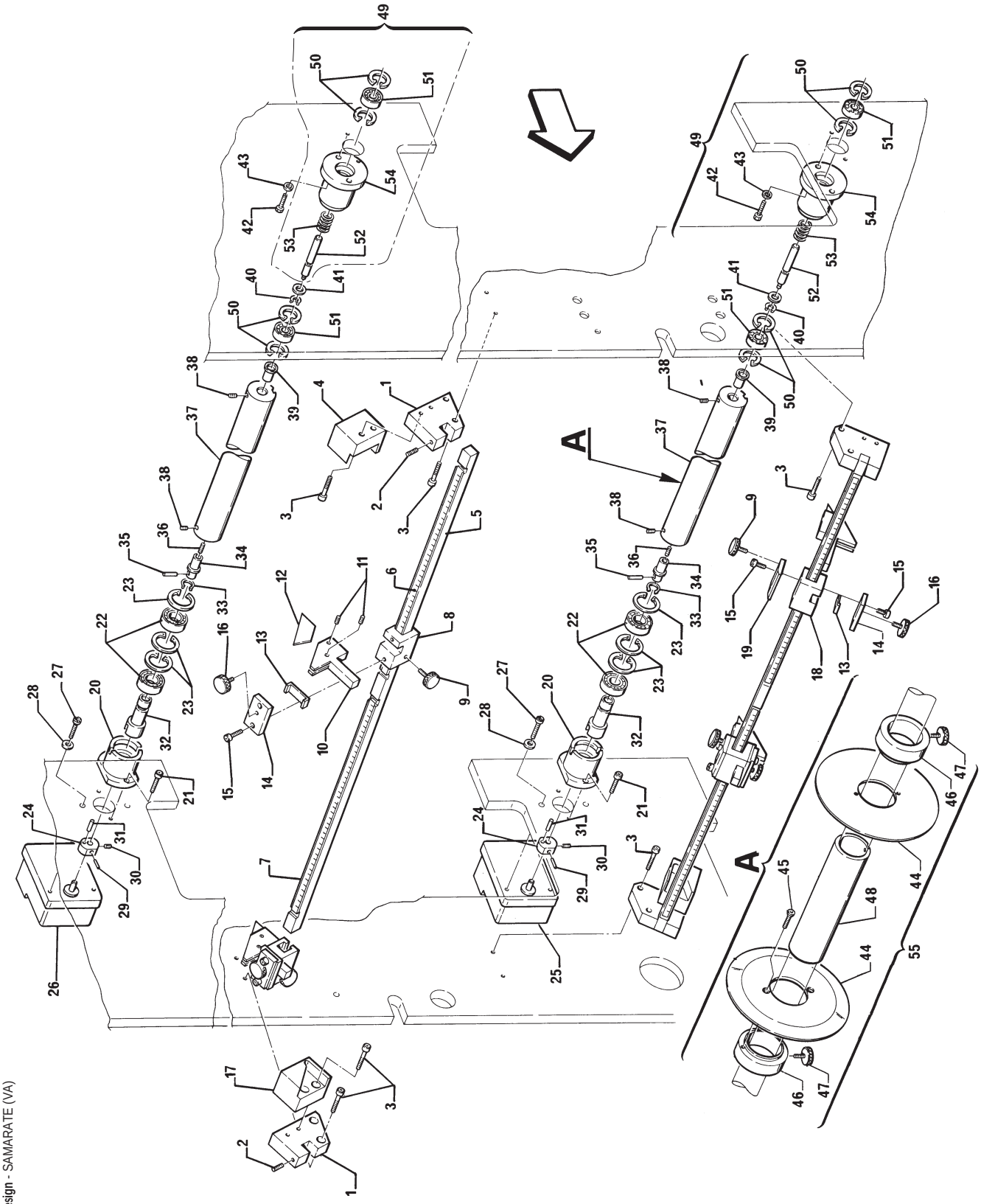
PART NUMBER	TAB.	POS.	SERIAL NUMBER	DESCRIPTION
062-02-464-00	31	1	==	READING PLATE FOR SENSOR 017500050
062-02-415-00	31	2	==	SCREW M6x8
062-02-627-00	31	3	==	SENSOR SUPPORT 022600016
==	31	4	==	SEE TAB. 48
062-02-628-00	31	5	==	SCREW M4x25
062-02-066-00	31	6	==	RING NUT GUK M12x1
062-02-629-00	31	7	==	CLUTCH ADJUSTMENT SPACER 22600010
062-02-091-00	31	8	==	BALL BEARING 61801-2Z ø12-21-5
062-02-630-00	31	9	==	ADJUSTMENT SPACER 022600008
062-02-095-00	31	10	==	SPRING RING E28
062-02-631-00	31	11	==	CONTROL PULLEY 022600004
062-02-632-00	31	12	==	TOOTHED BELT 420L075
062-02-633-00	31	13	==	CONNECTION FLANGE 022600005
062-02-634-00	31	14	==	FLAT KEY B6x4x18
062-02-055-00	31	15	==	BALL BEARING SKF 6202 2RS ø15-35-11
062-02-097-00	31	16	==	SPRING RING I35
062-02-635-00	31	17	==	WASHER 022600009
062-02-636-00	31	18	==	SPRING TYPE CO 2360
062-02-816-00	31	19	==	ELECTROMAGNETIC CLUTCH TYPE C06.03.110 - 24V DC
062-02-637-00	31	20	==	SCREW M4x12
062-02-638-00	31	21	==	SCREW M4x18
062-02-011-00	31	22	==	BEARING SKF 6003-2RS ø17-35-10
062-02-639-00	31	23	==	ROLL SUPPORT 022600001
062-02-115-00	31	24	==	SCREW M6x25
062-02-640-00	31	25	==	DISC PAD 022600014
062-02-641-00	31	26	==	SPRING TYPE CO 2160
062-02-642-00	31	27	==	ROLL BRAKE BLOCK 022600013
062-02-643-00	31	28	==	SCREW M4x30
062-02-644-00	31	29	==	ADJUSTMENT SCREW 022600015
062-02-357-00	31	30	==	HEX. NUT M12
062-02-645-00	31	31	==	ROLL CONTROL SHAFT 022600002
062-02-646-00	31	32	==	TANG TYPE B5x5x16
062-02-094-00	31	33	==	SPRING RING E20
062-02-647-00	31	34	==	BRAKE DISC 022600012
062-02-190-00	31	35	==	SCREW M6x6
062-02-089-00	31	36	==	BALL BEARING SKF 6007-2RS ø35-62-14
062-02-096-00	31	37	==	SPRING RING E35
062-02-888-00	31	38	==	ENRICHMENT ROLL 022600018
062-02-650-00	31	39	==	SPRING PIN ø 5x50
062-02-018-00	31	40	==	BEARING 6001-2RS ø 12-28-8
062-02-652-01	31	41	==	LEFT PIN 022601011
062-02-384-00	31	42	==	HEX. HEAD SCREW M6x15
062-02-116-00	31	43	==	WASHER DN6
062-02-969-00	31	44	==	SPACER 022600017
062-02-206-00	31	45	==	SCREW M6x35
062-02-653-00	31	46	==	SUPPORT 022701001
062-02-654-00	31	47	==	CYLINDER HEAD FOR ROLLER 022700004
062-02-462-00	31	48	==	SCREW M8x12
062-02-655-00	31	49	==	ROD 022700002
062-02-656-00	31	50	==	ROLL ø 90 022700003
062-02-856-00	31	51	==	ROLL SUPPORT 022700006
062-02-115-00	31	52	==	HEX. SCREW M6x25
062-02-877-00	31	53	==	BEARING SKF 6001-2Z ø12-28-8
062-02-855-00	31	54	==	ROLL ø 15 022700005
062-02-971-00	31	55	==	SPACER 022300011
062-02-883-00	31	56	==	COMPLETE POLYETHYLENE TAKE-UP ROLLER



PART NUMBER	TAB.	POS.	SERIAL NUMBER	DESCRIPTION
062-01-015-00	32	1	==	CYLINDER ø 32 - STROKE 25 COD. 0822.350.001
062-01-015-01	32	2	==	SPARE PARTS KIT
062-01-058-00	32	3	==	HINGE COD. 1827-001-289
062-01-059-00	32	4	==	PIN COD. 1823120020
062-01-060-00	32	5	==	HINGE COD. 18270011283
062-02-657-00	32	6	==	CYLINDER SUPPORT BRACKET 022800010
062-02-658-00	32	7	==	HEX. HEAD SCREW M6x22 UNI 5739
062-02-116-00	32	8	==	PLAIN WASHER DN6
062-02-662-00	32	9	==	ARTICULATED HEAD COD. 1822124003
062-02-663-00	32	10	==	SCREW M10x35 UNI 5931
062-02-136-00	32	11	==	PLAIN WASHER DN10
062-02-664-00	32	12	==	LEVER 022800002
062-02-135-00	32	13	==	HEX. NUT M10
062-02-665-00	32	14	==	HEX. HEAD SCREW M6x30
062-02-666-00	32	15	==	FLANGE 022800008
062-02-667-00	32	16	==	HEX. HEAD SCREW M5x12
062-02-176-00	32	17	==	PLAIN WASHER DN5
062-02-101-00	32	18	==	BALL BEARING SKF 61804-2Z ø20-32-7
062-02-668-00	32	19	==	SPACER FOR SHAFT 022800011
062-02-669-00	32	20	==	ROLL SUPPORT LEVER 022800001
062-02-670-00	32	21	==	HEX. HEAD SCREW M6x40
062-02-246-00	32	22	==	HEX. NUT M6
062-02-671-00	32	23	==	IDLE ROLL SHAFT 022800006
062-02-672-00	32	24	==	IDLE ROLL ø 35 - 022800005
062-02-673-00	32	25	==	SPACER 022800007
062-02-674-00	32	26	==	PIN FOR ROLL ø 30 - 000014036
062-02-172-00	32	27	==	HEX. NUT M8
062-02-103-00	32	28	==	BALL BEARING SKF 625-2Z ø5-16-5
062-02-675-00	32	29	==	SLEEVE FOR ROLL ø 30 - 000010069A
062-02-676-00	32	30	==	DYNAMIC TENSION ROLL ø 30
062-02-677-00	32	31	==	SET SCREW IDLE ROLL 022800009
062-02-541-00	32	32	==	HEX. NUT M16
062-02-102-00	32	33	==	BALL BEARING SKF 6201-2Z ø12-32-10
062-02-678-00	32	34	==	IDLE ROLL ø 35 - 022800003
062-02-198-00	32	35	==	SCREW M6x15
062-02-972-00	32	36	==	SENSOR SUPPORT 022800012
062-02-973-00	32	37	==	BRACKET FOR SENSOR READING 022800013
062-02-217-00	32	38	==	SCREW M5x15
062-02-242-00	32	39	==	SCREW M6x30
==	32	40	==	SEE TAB. 48



PART NUMBER	TAB.	POS.	SERIAL NUMBER	DESCRIPTION
062-02-679-00	33	1	==	SUPPORT 023600001
062-02-549-00	33	2	==	SCREW M6x20
062-02-242-00	33	3	==	SCREW M6x30
062-02-680-00	33	4	==	KNIFE GUARD 018100020
062-02-681-00	33	5	==	GUIDE 023600003
062-02-682-00	33	6	==	RIGHT SCALE 023600011
062-02-683-00	33	7	==	LEFT SCALE 023600010
062-02-684-00	33	8	==	SLIDING SUPPORT 018100010
062-02-685-00	33	9	==	KNURLED HEAD SCREW M6x20
062-02-686-00	33	10	==	KNIFE SUPPORT 018100011
062-02-190-00	33	11	==	SCREW M6x6
062-02-687-00	33	12	==	KNIFE
062-02-688-00	33	13	==	BRACKET 018100018
062-02-689-00	33	14	==	COVER 018100016
062-02-690-00	33	15	==	SCREW M4x14
062-02-691-00	33	16	==	KNURLED HEAD SCREW M6x16
062-02-692-00	33	17	==	KNIFE GUARD 018100025
062-02-697-00	33	18	==	SLIDING SUPPORT 018100013
062-02-698-00	33	19	==	PLATE 023600002
062-02-889-00	33	20	==	MOTOR SUPPORT 023600004
062-02-175-00	33	21	==	SCREW M5x25
062-02-974-00	33	22	==	BEARING SKF 6003-2Z ø17-35-10
-062-02-097-00	33	23	==	SPRING RING I35
062-02-975-00	33	24	==	MOTOR FLANGE 023600012
062-02-802-00	33	25	==	LOWER GEARMOTOR FOR LATERAL CUTTING MR330 45RPM-220V/50HZ H12 CLOCKWISE DIRECTION
062-02-803-00	33	26	==	UPPER GEARMOTOR FOR LATERAL CUTTING MR330 45RPM-220V/50HZ H12 COUNTERCLOCKWISE DIRECTION
062-02-976-00	33	27	==	SCREW M4x25
062-02-338-00	33	28	==	PLAIN WASHER DN4
062-02-978-00	33	29	==	PARALLEL PIN ø 3x20
062-02-537-00	33	30	==	SCREW M5x10
062-02-979-00	33	31	==	PARALLEL PIN ø 6x18
062-02-980-00	33	32	==	CLUTCH 023600009
062-02-204-00	33	33	==	SPRING RING E17
062-02-894-00	33	34	==	PIN BUSHING 023600007
062-02-981-00	33	35	==	PARALLEL PIN ø 5x20
062-02-223-00	33	36	==	SCREW M5x15
062-02-893-00	33	37	==	FILM WASTE RECOVERY ROLL 023600005
062-02-186-00	33	38	==	SCREW M6x10
062-02-895-00	33	39	==	CENTERING BUSH 023600013
062-02-850-00	33	40	==	SPRING RING E10
062-02-983-00	33	41	==	SHIM
062-02-435-00	33	42	==	HEX. SCREW M5x25
062-02-176-00	33	43	==	PLAIN WASHER DN5
062-02-892-00	33	44	==	SCRAP GUIDE FLANGE 023600014
062-02-492-00	33	45	==	SCREW M4x20
062-02-891-00	33	46	==	SUPPORT 023600016
062-02-977-00	33	47	==	KNURLED HEADED SCREW M6x25
062-02-890-00	33	48	==	BUSHING 023600017
062-12-025-00	33	49	==	LEFT FILM WASTE RECOVERY ROLL SUPPORT (ASSY.)
062-02-898-00	33	50	==	SPRING RING I26
062-02-982-00	33	51	==	BALL BEARING SKF 6000-2Z ø10-26-8
062-02-984-00	33	52	==	CENTERING SHAFT 023600006
062-02-985-00	33	53	==	ROLL PRESSING SPRING 023600015
062-02-986-00	33	54	==	SUPPORT 023600008
062-12-056-00	33	55	==	LATERAL CUT WASTE WINDING SPOOL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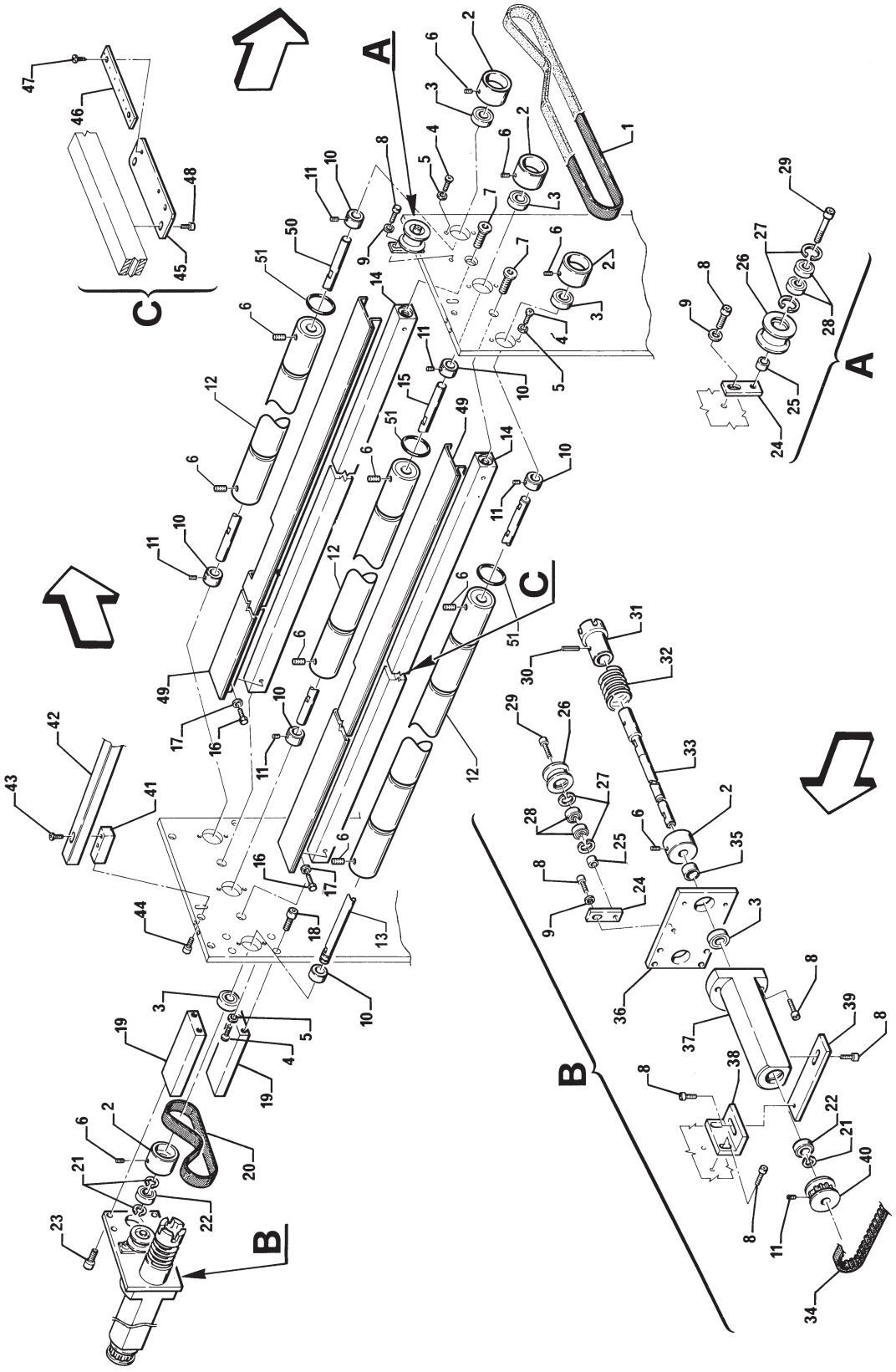
PART NUMBER	TAB.	POS.	SERIAL NUMBER	DESCRIPTION
062-02-108-00	34	1	==	FLAT BELT F.O. 20x545
062-02-699-00	34	2	==	PULLEY 017100017
062-02-018-00	34	3	==	BEARING 6001-2RS ø 12-28-8
062-02-187-00	34	4	==	SCREW M5x12
062-02-701-00	34	5	==	PLAIN WASHER ø 6,5
062-02-186-00	34	6	==	SCREW M6x10
062-02-700-00	34	7	==	SCREW M10x25
062-02-198-00	34	8	==	SCREW M6x15
062-02-116-00	34	9	==	PLAIN WASHER DN6
062-02-189-00	34	10	==	RETAINER 017100010
062-02-190-00	34	11	==	SCREW M6x6
062-12-169-00	34	12	==	ROLL WITH O RING 017101009
062-02-702-00	34	13	==	SHAFT 022200004
062-02-193-00	34	14	==	SHOULDER CONNECTING ROD 017100011
062-02-192-00	34	15	==	SHAFT 017100006
062-02-197-00	34	16	==	HEX. HEAD SCREW M5x10
062-02-176-00	34	17	==	PLAIN WASHER DN5
062-02-184-00	34	18	==	SCREW M8x25
062-02-703-00	34	19	==	SUPPORT 022200010
062-02-107-00	34	20	==	FLAT BELF F.O. 20x345
062-02-067-00	34	21	==	SPRING RING E12
062-02-016-00	34	22	==	BEARING 61901 ø 12-24-6
062-02-114-00	34	23	==	SCREW M8x16
062-02-199-00	34	24	==	BELT TENSIONER SUPPORT 017100021
062-02-202-00	34	25	==	SPACER 017100019
062-02-203-00	34	26	==	BELT TENSIONER PULLEY 017100018
062-02-064-00	34	27	==	SPRING RING I19
062-02-014-00	34	28	==	BEARING 626-2RS ø 6-19-6
062-02-175-00	34	29	==	SCREW M6x25
062-02-704-00	34	30	==	SPRING PIN ø 5x25
062-02-705-00	34	31	==	CONVEYOR TRANSMISSION SLEEVE 022200009
062-02-706-00	34	32	==	SPRING 022200014
062-02-707-00	34	33	==	CONVEYOR CONTROL SHAFT 022200006
062-02-715-00	34	34	==	TOOTHED BELT 540L050
062-02-709-00	34	35	==	SPACER 022200012
062-02-710-00	34	36	==	TRANSMISSION SUPPORT 022200008
062-02-711-00	34	37	==	SUPPORT 022200007
062-02-712-00	34	38	==	BRACKET 022200030
062-02-713-00	34	39	==	TIE ROD 022200009
062-02-714-00	34	40	==	TOOTHED PULLEY 022200028
062-02-708-00	34	41	==	SUPPORT 022200016
062-02-661-00	34	42	==	TOP GROUNDING SUPPORT 022200017
062-02-618-00	34	43	==	SCREW M4x16
062-02-225-00	34	44	==	SCREW M4x20
062-02-660-00	34	45	==	BOT GROUNDING SUPPORT 022200019
062-02-659-00	34	46	==	GROUNDING BAR 022200018
062-02-755-00	34	47	==	TAPPING SCREW ø 3,5x10
062-02-241-00	34	48	==	SCREW M4x10
062-02-801-00	34	49	==	SLIDING DEVICE 022200015
062-02-987-00	34	50	==	SHAFT 022200003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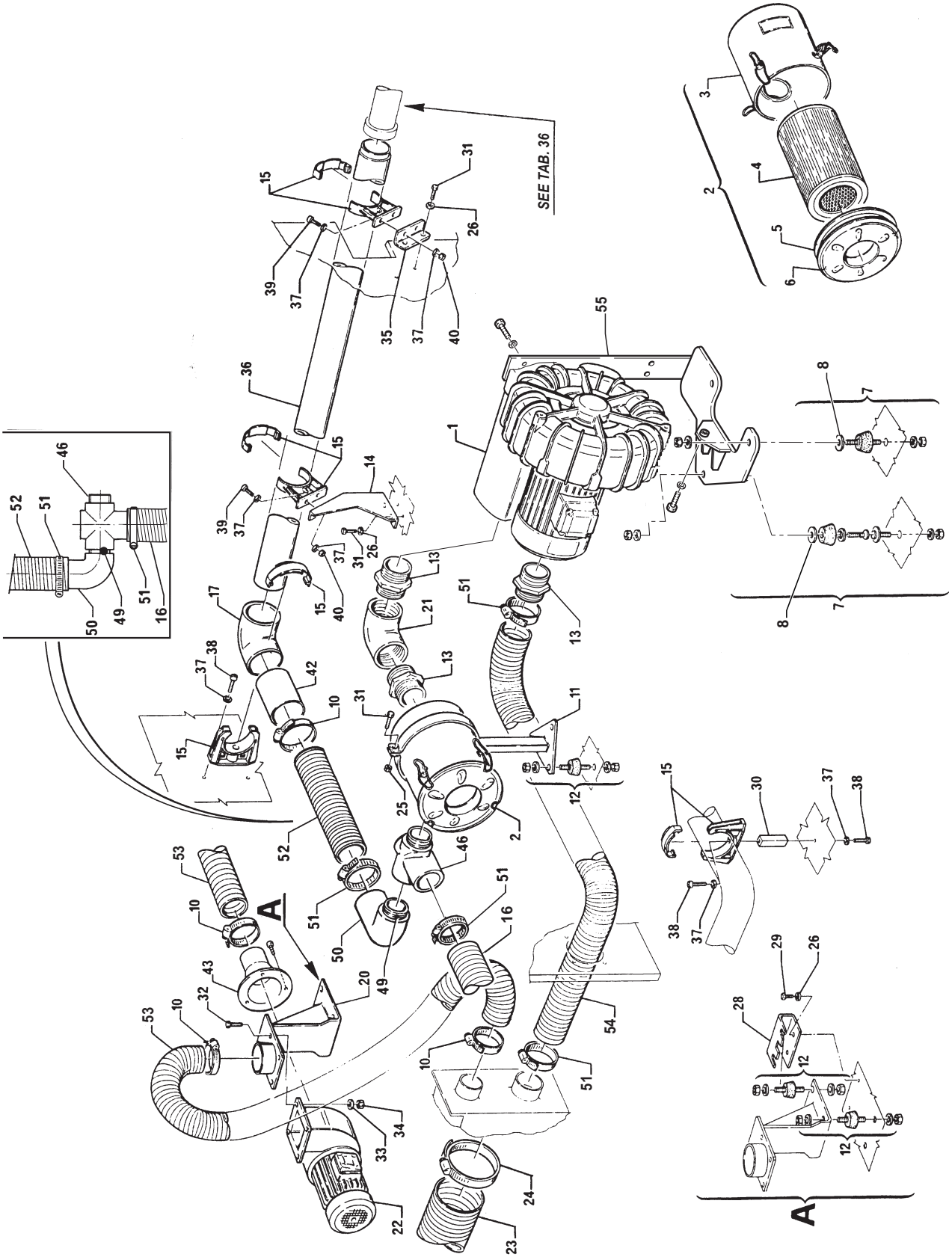
PART NUMBER	TAB.	POS.	SERIAL NUMBER	DESCRIPTION
062-12-204-00	35	1	==	PUMP BECKER SV7 330/1-01-M-T
062-02-717-00	35	2	==	FILTER BECKER FV250 (ASSY)
062-02-717-01	35	3	==	CARTRIDGE BOX
062-02-717-02	35	4	==	FILTER CARTRIDGE
062-02-717-03	35	5	==	SEALING RING
062-02-717-04	35	6	==	FILTER UNIT COVER
062-02-718-00	35	7	==	VIBRATION DAMPER CONIC TYPE 6N
062-02-719-00	35	8	==	WASHER FOR PUMP 024400015
—	35	9	==	—
062-02-721-01	35	10	==	CLAMP SERFLEX DN60
062-12-011-00	35	11	==	FILTER SUPPORT BRACKET 024400018
062-02-723-00	35	12	==	VIBRATION DAMPER CONIC TYPE 4N
062-12-725-00	35	13	==	PVC NIPPLE TYPE: 00NFV 2 1/2″
062-12-012-00	35	14	==	PIPE SUPPORT ø 90 024400019
062-02-726-00	35	15	==	PIPE SUPPORT BRACKET
062-02-727-00	35	16	==	HOSE ø 90
062-02-728-00	35	17	==	PVC ELBOW DN MF90 TYPE 00GIV90
—	35	18	==	—
—	35	19	==	—
062-02-731-00	35	20	==	SUPPORT BRACKET FOR EXHAUSTER 022900039
062-02-732-00	35	21	==	ELBOW THREADED PVC F-F ø 90 TYPE 00GFV 2 1/2″
062-02-733-00	35	22	==	EXHAUSTER TYPE 50B2-U/HC 102 UTENTRA MF VERSION
062-02-734-00	35	23	==	HOSE ø 150
062-02-735-00	35	24	==	CLAMP SERFLEX ø 150
062-02-213-00	35	25	==	HEX. NUT M5
062-02-176-00	35	26	==	PLAIN WASHER DN5
062-02-736-00	35	27	==	VIBRATION DAMPER CONIC TYPE 6N
062-12-268-00	35	28	==	VIBRATION DAMPER SUPPORT 022900040
062-02-197-00	35	29	==	HEX. HEAD SCREW M5x10
062-12-023-00	35	30	==	HOSE SUPPORT SPACER 024400016
062-02-738-00	35	31	==	HEX. HEAD SCREW M5x16
062-02-658-00	35	32	==	HEX. HEAD SCREW M6x22
062-02-116-00	35	33	==	PLAIN WASHER DN6
062-02-246-00	35	34	==	HEX. NUT M6
062-02-739-00	35	35	==	BRACKET SUPPORT 024400017
062-02-740-00	35	36	==	FIXED INTAKE PIPE 024400008
062-12-015-00	35	37	==	PLAIN WASHER DN8
062-02-233-00	35	38	==	SCREW M8x20
062-02-184-00	35	39	==	SCREW M8x25
062-02-172-00	35	40	==	HEX. NUT M8
—	35	41	==	—
062-12-028-00	35	42	==	REDUCER 024400011
062-12-029-00	35	43	==	REDUCER 022900038
062-02-755-00	35	44	==	TAPPING SCREW T.C. ø 3.5x10
062-12-114-00	35	45	==	ASSEMBLE VACUUM VALVE INSTALMENT KIT 06200392
062-01-069-00	35	46	==	“BECKER” VALVE VACUUM REGULATION TYPE ST 581-0-15 (ASSY)
—	35	47	==	—
—	35	48	==	—
062-12-117-00	35	49	==	VACUUM VALVE CONNECTOR 024400021
062-12-118-00	35	50	==	ELBOW FOR BLOWER 024400022
062-12-721-00	35	51	==	CLAMP SERFLEX ø 90
062-12-119-00	35	52	==	BLACK HOSE SUPERFLEX CALOR ø 90 L=300 mm
062-12-063-00	35	53	==	HOSE ø 60
062-12-062-00	35	54	==	HOSE ø 80
062-12-203-00	35	55	==	PUMP BECKER SUPPORT SV7 024400025


SEE TAB. 36
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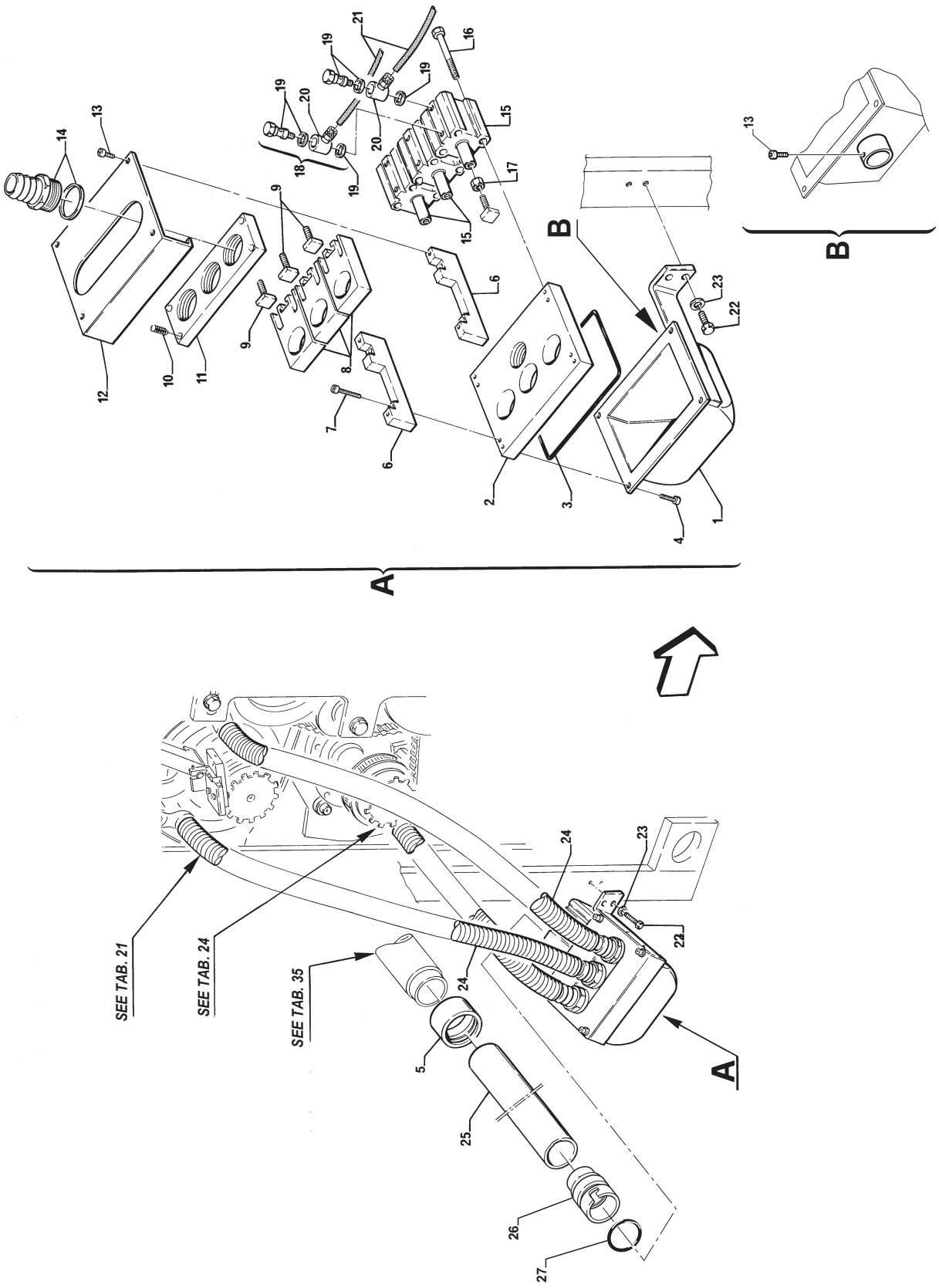
PART NUMBER	TAB.	POS.	SERIAL NUMBER	DESCRIPTION
062-02-788-00	36	1	==	EXHAUSTER CASING 024400001
062-02-789-00	36	2	==	DISTRIBUTOR PLATE 024400004
062-02-798-00	36	3	==	O RING 4587
062-02-217-00	36	4	==	SCREW M5x15
062-02-797-00	36	5	==	RING 024400009
062-02-790-00	36	6	==	SHOULDER 024400006
062-02-175-00	36	7	==	SCREW M5x25
062-02-791-00	36	8	==	SLIDING PLATE
062-02-792-00	36	9	==	SCREW 024400005
062-02-793-00	36	10	==	UPPER PLATE 024400007
062-02-794-00	36	11	==	SPRING CIMA CO 1971
062-02-795-00	36	12	==	CASING 024400003
062-02-241-00	36	13	==	SCREW M4x10
062-01-064-00	36	14	==	HOSE HOLDER 1˝ GAS - ø 25
062-01-065-00	36	15	==	CYLINDER TYPE «SMC» ECQ2B25 35D ø 25 STROKE 35
062-02-611-00	36	16	==	SCREW M5x55
062-02-799-00	36	17	==	HEX. NUT M6
062-01-066-00	36	18	==	SINGLE ASSEMBLED UNION D6/4 - G1/8˝
062-01-066-01	36	19	==	SINGLE ROD M D7 - G1/8˝ - COD. 2407002
062-01-066-02	36	20	==	SINGLE RING D5 D. 6/4 - G1/8˝ COD. 2405002
062-01-003-02	36	21	==	BLUE HOSE ø6/4
062-02-738-00	36	22	==	HEX. HEAD SCREW M5x16
062-02-176-00	36	23	==	PLAIN WASHER DN5
062-02-741-00	36	24	==	PVC HOSE 25I/ ø 30E
062-02-796-00	36	25	==	MOVABLE SUCTION HOSE 024400010
062-12-262-00	36	26	==	RING FOR HOSE 024400024
062-12-263-00	36	27	==	O RING 3275


SEE TAB. 21
SEE TAB. 24
SEE TAB. 35
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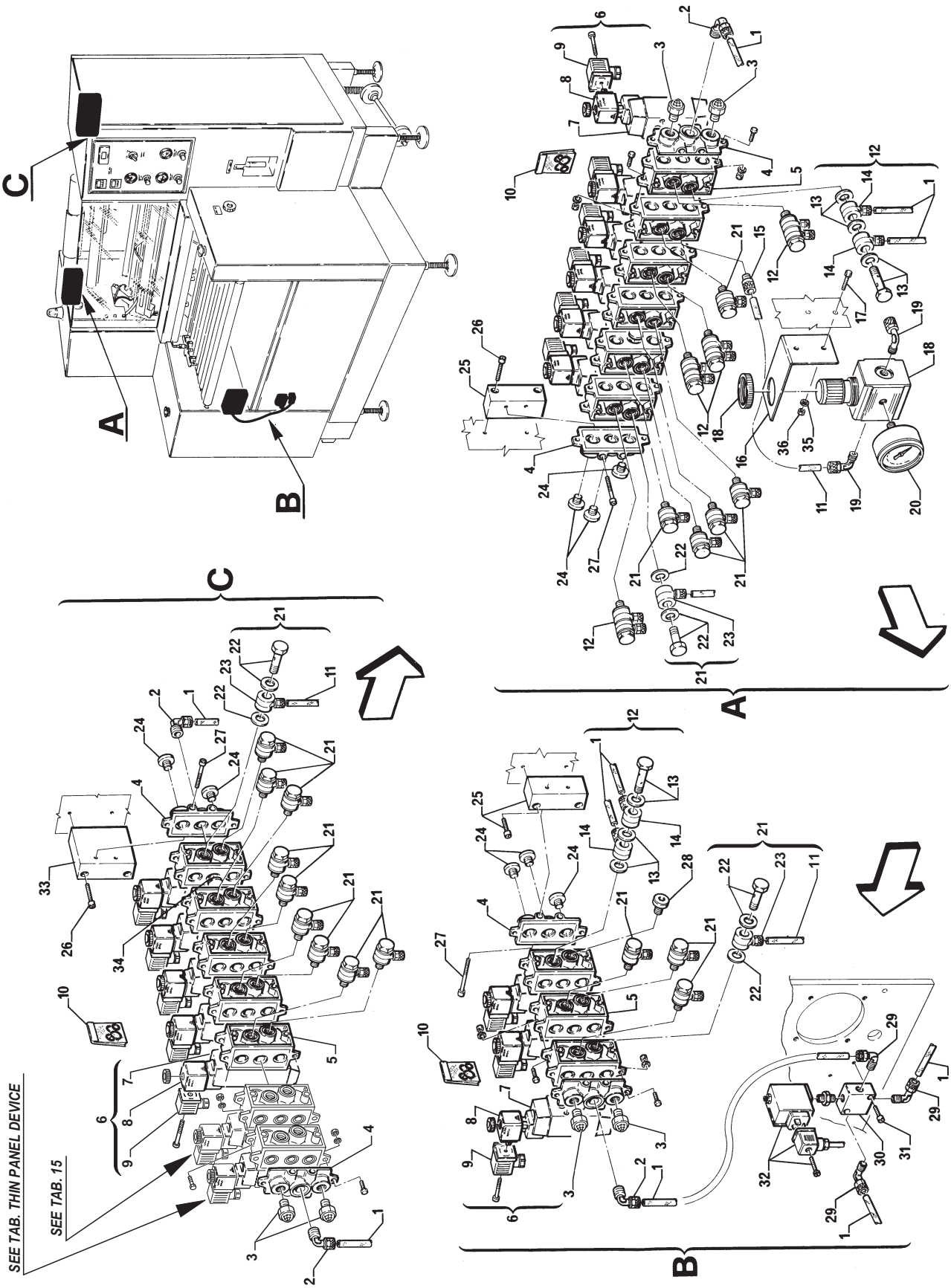
PART NUMBER	TAB.	POS.	SERIAL NUMBER	DESCRIPTION
062-01-016-00	37	1	==	HOSE ø 8/6
062-01-017-00	37	2	==	UNION L-M C5 ø 8/6 G 3/8″
062-01-019-00	37	3	==	SILENCER 3/8″
062-01-020-00	37	4	==	RIGHT AND LEFT FINAL PLATE 1.825.503.145
062-01-021-00	37	5	==	INTERMEDIATE PLATE 1.825.503.144
062-01-022-00	37	6	==	ELECTROVALVE 0.820.024.126 24V DC (ASSY)
062-01-022-02	37	7	==	VALVE BODY BOSCH 0.820.024.997
062-01-022-03	37	8	==	24VDC COIL FOR ELECTROVALVE BOSCH 1.824.210.223
062-01-022-04	37	9	==	CONNECTOR WITH INDICATOR FOR ELECTROVALVE BOSCH 1.834.484.101
062-01-022-01	37	10	==	SPARE PARTS KIT 1.827.009.314
062-01-003-00	37	11	==	HOSE ø 6/4
062-01-023-00	37	12	==	DOUBLE UNION ASSY. ø 8/6 - G1/4″
062-01-023-01	37	13	==	DOUBLE ROD. M D8 - G1/4″ COD. 2408002
062-01-023-02	37	14	==	SINGLE RING D5 ø 8/6 - G1/4″ COD. 2405006
062-01-044-00	37	15	==	STRAIGHT FITTING C1 ø 6/4 - G1/8″ CODE 2301001
062-12-017-00	37	16	==	SUPPORT FOR AIR FLOW REGULATOR
062-02-958-00	37	17	==	SCREW M6x20
062-01-027-00	37	18	==	PRESSURE REGULATOR 0821.302.401
062-01-028-00	37	19	==	UNION ELBOW C5 ø 6/4 G1/4″ COD. 2305002
062-01-029-00	37	20	==	MANOMETER
062-01-030-00	37	21	==	SINGLE UNION ASSY. ø 6/4 - G1/4″
062-01-030-01	37	22	==	SINGLE ROD M D7 - G1/4″ COD. 2407003
062-01-030-02	37	23	==	SINGLE RING D5 ø 6/4 - G1/4″ COD. 2405003
062-01-031-00	37	24	==	PLUG M A7 G3/8″ COD. 2107003
062-02-749-00	37	25	==	ELECTROVALVE SUPPORT 017000006
062-02-248-00	37	26	==	SCREW M6x45
062-02-750-00	37	27	==	SCREW M5x60
062-01-032-00	37	28	==	MALE PLUG A7 G1/4″ COD. 2107002
062-01-033-00	37	29	==	UNION ELBOW C5 ø 8/6 G1/4″ COD. 2305004
062-01-034-00	37	30	==	BLOCK A21 G1/4″ COD. 2121002
062-02-217-00	37	31	==	SCREW M5x15
062-01-035-00	37	32	==	AIR PRESSURE SWITCH TYPE ES. 2000
062-02-751-00	37	33	==	ELECTROVALVE SUPPORT 017000007
062-01-036-00	37	34	==	SEPARATING SPACER 1.820.222.008
062-02-116-00	37	35	==	PLAIN WASHER DN6
062-02-246-00	37	36	==	HEX. NUT M6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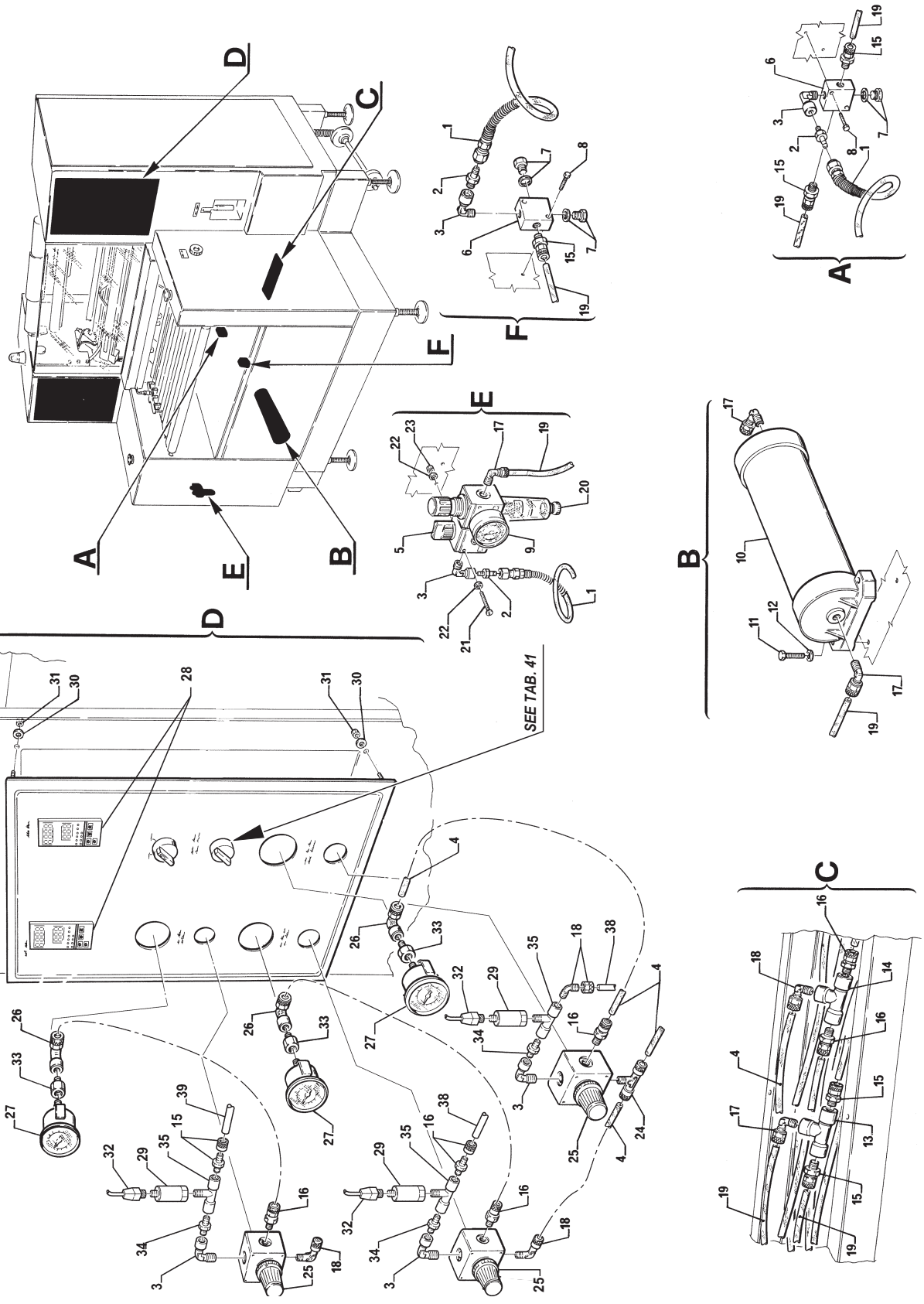
SEE TAB. THIN PANEL DEVICE
SEE TAB. 15

PART NUMBER	TAB.	POS.	SERIAL NUMBER	DESCRIPTION
062-01-037-00	38	1	==	HOSE
062-01-038-00	38	2	==	QUICK CONNECTION M1/4″
062-01-026-00	38	3	==	UNION ELBOW A10 M-F G1/4″ COD. 2110002
062-01-003-00	38	4	==	HOSE ø 6/4
062-01-040-01	38	5	==	BLOCK VALVE G1/4″ TYPE 0.821.300.980
062-01-034-00	38	6	==	BLOCK A21 G1/4″ COD. 2121002
062-01-032-00	38	7	==	PLUG M A7 G1/4″ COD. 2107002
062-02-217-00	38	8	==	SCREW M5x15
062-01-041-00	38	9	==	MANOMETER G1/4″ TYPE 1.827.231.015 (RANGE 0-10)
062-01-039-00	38	10	==	BAG P.340 F.P. ø 100
062-02-407-00	38	11	==	HEX. HEAD SCREW M8x30
062-02-121-00	38	12	==	PLAIN WASHER DN8
062-01-025-00	38	13	==	UNION TEE A11 F.F.F. 1/4″ COD. 2111002
062-01-042-00	38	14	==	UNION TEE A11 F1/8″ COD. 2111001
062-01-043-00	38	15	==	CONNECTION C1 ø 8/6 - G1/4″ COD. 2301004
062-01-044-00	38	16	==	CONNECTION C1 ø 6/4 - G1/8″ COD. 2301001
062-01-033-00	38	17	==	UNION ELBOW C5 ø 8/6 - G1/4″ COD. 2305004
062-01-014-00	38	18	==	UNION ELBOW C5 ø 6/4 - G1/8″ COD. 2305001
062-01-016-00	38	19	==	HOSE ø 8/6
062-01-045-00	38	20	==	REDUCER FILTER G1/4″ TYPE 0.821.300.300
062-02-163-00	38	21	==	SCREW 4x65
062-02-116-00	38	22	==	PLAIN WASHER DN6
062-02-246-00	38	23	==	HEX. NUT M6
062-01-046-00	38	24	==	UNION TEE C7 - FMF ø 6/4 - G1/8″ ART 2307001
062-01-047-00	38	25	==	PRESSURE REDUCING VALVE G1/4″ TYPE 0.821.302.401
062-01-048-00	38	26	==	UNION ELBOW A9 - F.F. 1/8″ COD. 2109001
062-01-049-00	38	27	==	MANOMETER 1/4″ TYPE 1.827.231.035 (RANGE 0-16)
==	38	28	==	SEE TAB. 41
062-01-086-00	38	29	==	PRESSURE SENSOR “FESTO” SDE-10-5V/20M
062-02-800-00	38	30	==	PLAIN WASHER DN3
062-02-321-00	38	31	==	HEX. NUT M3
062-01-087-00	38	32	==	CONNECTOR “FESTO” SIM-M12-4GD-5-PU
062-01-067-00	38	33	==	M-F TAPER EXTENSION A5 1/8″ - 1/4″
062-01-089-00	38	34	==	CONNECTION A2 MM G1/4” COD.2102002
062-01-090-00	38	35	==	UNION TEE A12 FMF G1/4” COD.2112002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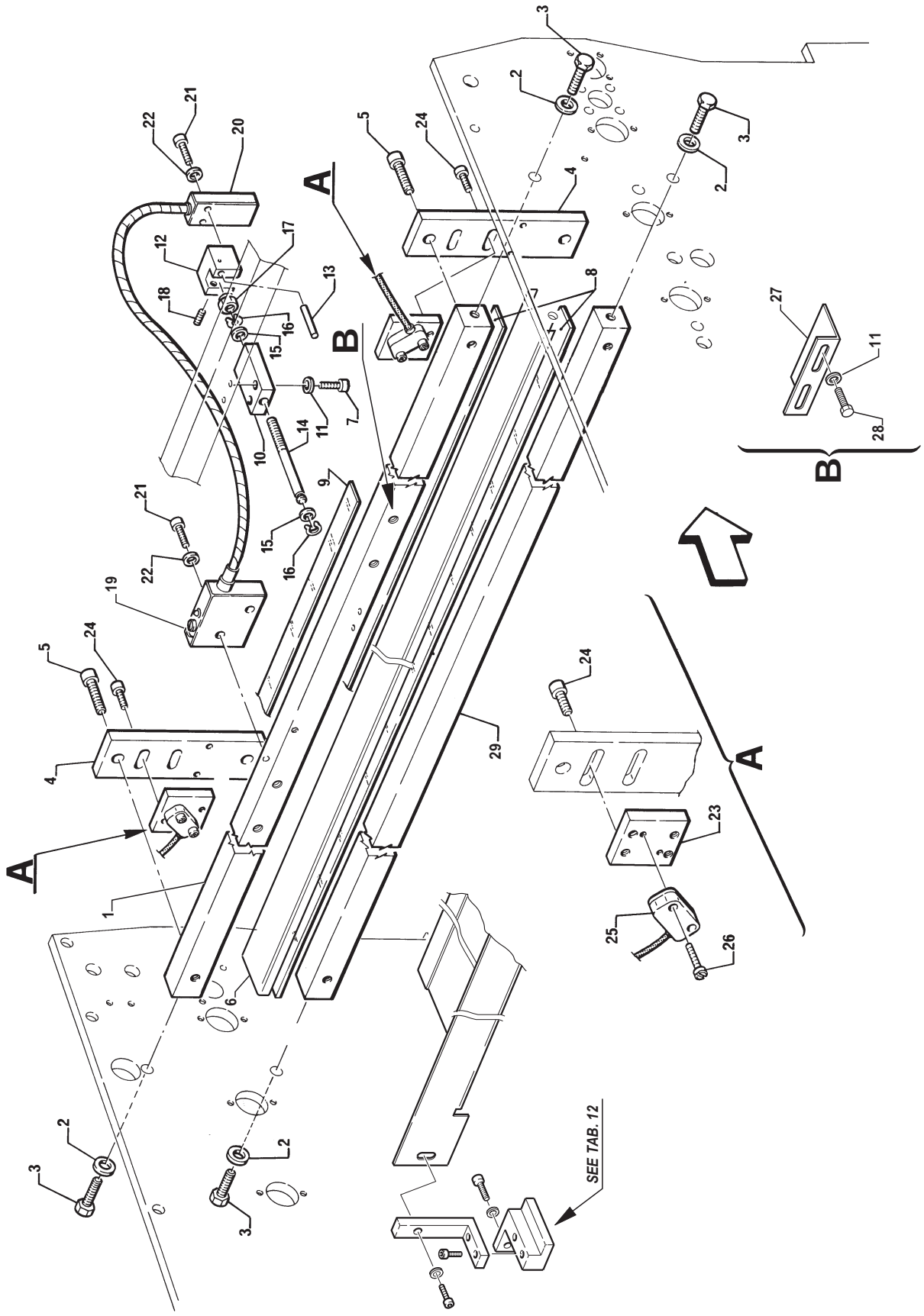
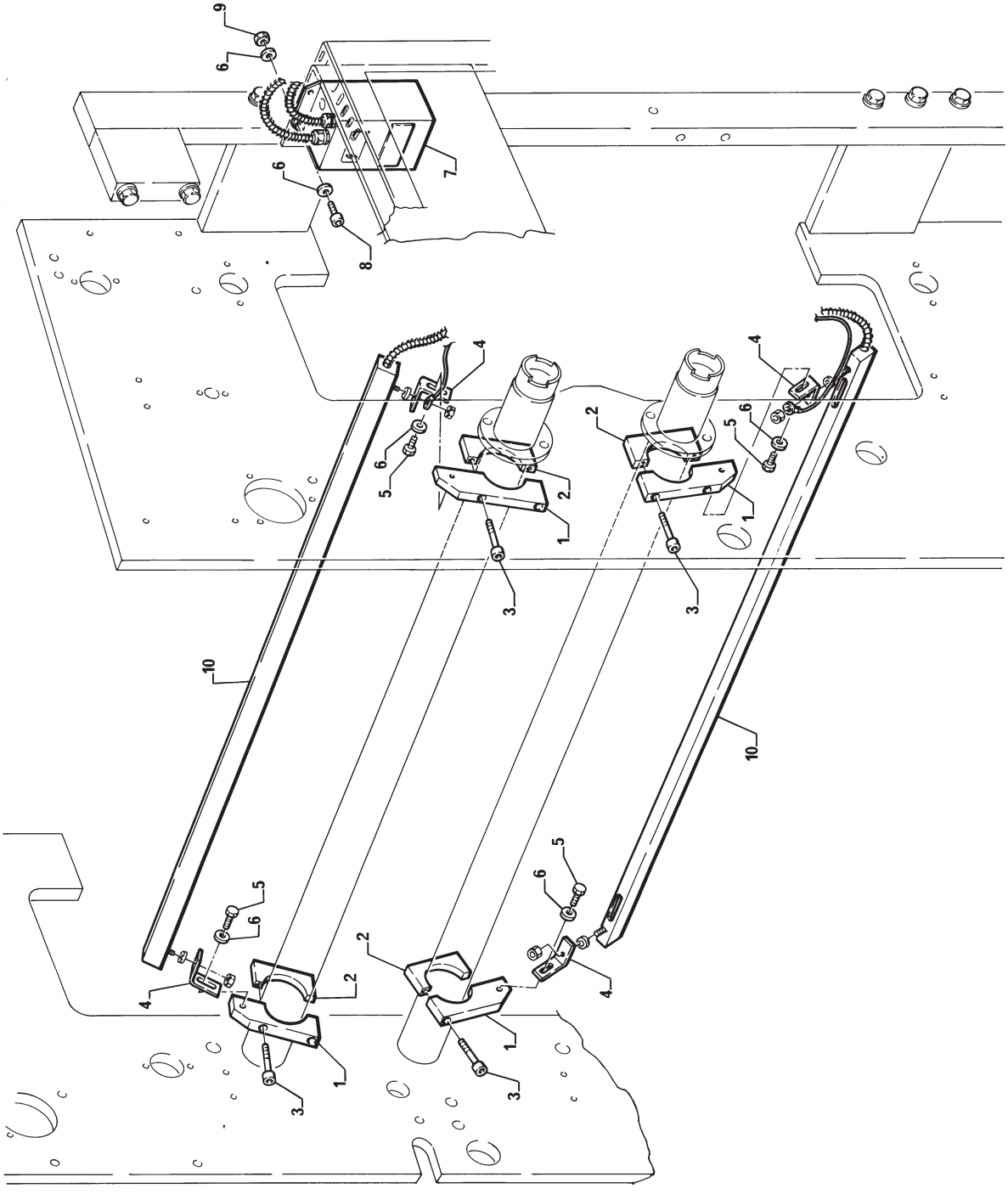
SEE TAB. 41

PART NUMBER	TAB.	POS.	SERIAL NUMBER	DESCRIPTION
062-02-882-00	39	1	==	BAR FOR UPPER REFLECTING STRIP 024701001
062-02-121-00	39	2	==	PLAIN WASHER DN8
062-02-354-00	39	3	==	SCREW M8x25
062-02-878-00	39	4	==	BAR PLATE 024700003
062-02-184-00	39	5	==	SCREW M8x25
062-12-202-00	39	6	==	THIN PANEL CHUTE ON REFLECTING BARRIER SCX 325/5
062-02-637-00	39	7	==	SCREW M4x12
062-02-989-00	39	8	==	LOWER REFLECTING ALUMINIUM STRIP 024700009
062-02-996-00	39	9	==	UPPER REFLECTING ALUMINIUM STRIP 024700010
062-02-990-00	39	10	==	FIXED PHOTOCELL SUPPORT 024700004
062-02-338-00	39	11	==	WASHER DN4
062-02-991-00	39	12	==	MOVABLE SUPPORT 024701005
062-02-992-00	39	13	==	PARALLEL PIN ø 4x30
062-02-993-00	39	14	==	THREADED BAR 024700007
062-02-995-00	39	15	==	PLAIN WASHER 024700008
062-02-994-00	39	16	==	SPRING RING E6
062-02-997-00	39	17	==	SELF-LOCKING HEX. NUT M6
062-02-957-00	39	18	==	SCREW M4x6
==	39	19	==	SEE TAB. 48
==	39	20	==	SEE TAB. 48
062-02-183-00	30	21	==	SCREW M3x20
062-02-800-00	39	22	==	PLAIN WASHER DN3
062-02-998-00	39	23	==	PHOTOCELL SUPPORT 024701006
062-02-217-00	39	24	==	SCREW M5x15
==	39	25	==	SEE TAB. 48
062-02-955-00	39	26	==	SCREW M3x15
062-12-201-00	39	27	==	ANGOLAR FOR DARKENING UPPER MIRROR BARRIER 024700012
062-12-261-00	39	28	==	SCREW M4x10
062-12-269-00	39	29	==	BAR FOR LOWER REFLECTING STRIP 024700011


SEE TAB. 12

PART NUMBER	TAB.	POS.	SERIAL NUMBER	DESCRIPTION
062-02-831-00	40	1	==	SUPPORT FOR ANTISTATIC BAR 017200064
062-02-832-00	40	2	==	CLAMP FOR ANTISTATIC BAR SUPPORT 017200065
062-12-030-00	40	3	==	SCREW M5x45
062-02-833-00	40	4	==	SUPPORT BRACKET FOR ANTISTATIC BAR 017200063
062-12-031-00	40	5	==	HEX. HEAD SCREW M6x12
062-02-116-00	40	6	==	PLAIN WASHER DN6
062-00-102-00	40	7	==	POWER SUPPLY FOR ANTISTATIC BARS SIMCO C2S
062-02-384-00	40	8	==	SCREW M6x15
062-02-246-00	40	9	==	HEX. NUT M6
062-00-101-00	40	10	==	ANTISTATIC BAR SIMCO MEB 762 COD.0385509231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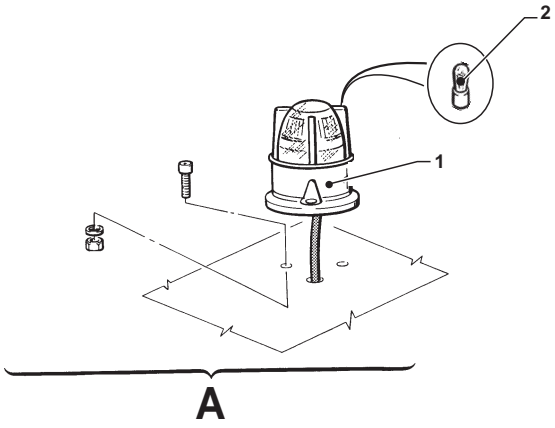
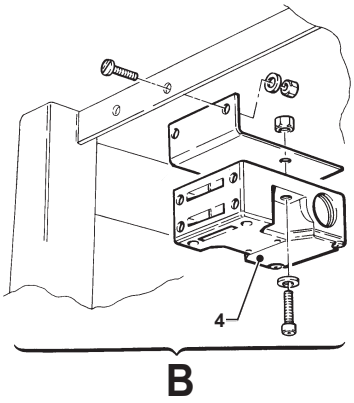
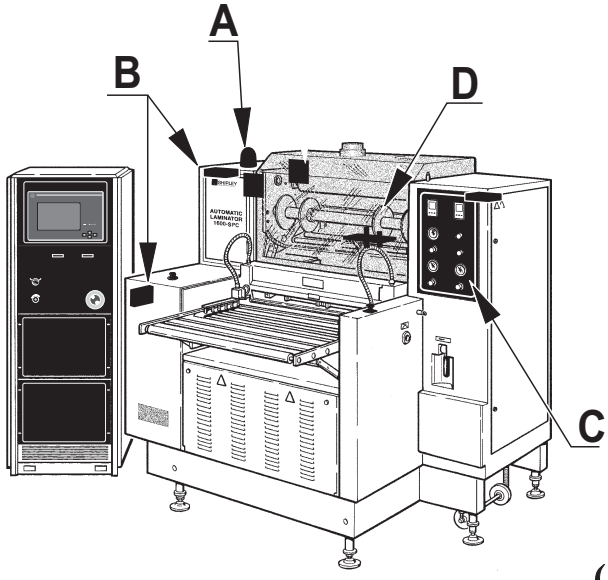
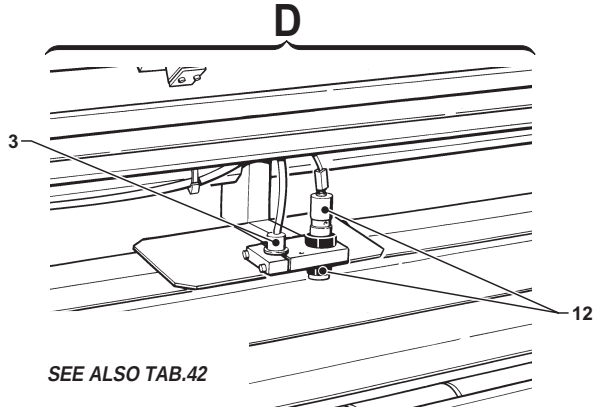
PART NUMBER	TAB.	POS.	SERIAL NUMBER	DESCRIPTION
062-00-021-00	41	1	≤062.03.249	ALARM FLASHING LAMP SRM LAMP 24V
510-17-005-00	41	1	≥062.03.250	ORANGE FLASHING LAMP ALARM L MT 79602 (ASSY)
062-00-021-02	41	2	≤062.03.249	FLASHING LIGHT INDICATOR 24V 4W
510-17-005-05	41	2	≥062.03.250	LIGHT INDICATOR Ba15d 5W 24v FOR L MT
==	41	3	==	SEE TAB. 42 POSITION 7
062-00-022-00	41	4	==	SAFETY MICROSWITCH AZ15 ZVR
062-00-116-00	41	5	≥062.03.209	THERMOREGULATOR OMRON E5EK FOR 1600-SPC (ASSY)
062-00-116-01	41	6	≥062.03.209	THERMOREGULATOR OMRON STANDARD BASE E5EK-AA2-500
062-00-116-02	41	7	≥062.03.209	THERMOREGULATOR OMRON OUTPUT MODULE NPN 12V DC E53-Q
062-00-116-03	41	8	≥062.03.209	THERMOREGULATOR OMRON CURRENT OUTPUT MODULE E53-AKF
062-00-049-00	41	9	≤062.03.239	2 POSITION BLACK SELECTOR (ASSY)
510-14-061-78	41	9	≥062.03.240	2 POS. BLACK SELECTOR (1NO) ZB4 (ASSY)
062-00-049-01	41	10	≤062.03.239	2 POSITION BLACK SELECTOR 080 SMDN
510-14-061-79	41	10	≥062.03.240	2 POS. BALCK SELECTOR ZB4-BD2 (HEAD)
062-00-060-02	41	11	≤062.03.239	CONTACT N0 080 BF 10V
510-14-061-98	41	11	≥062.03.240	CONTACT NO ZB4-BZ101
062-00-024-00	41	12	==	CYLINDRICAL PHOTOCELL E3F 2DS10 B4N

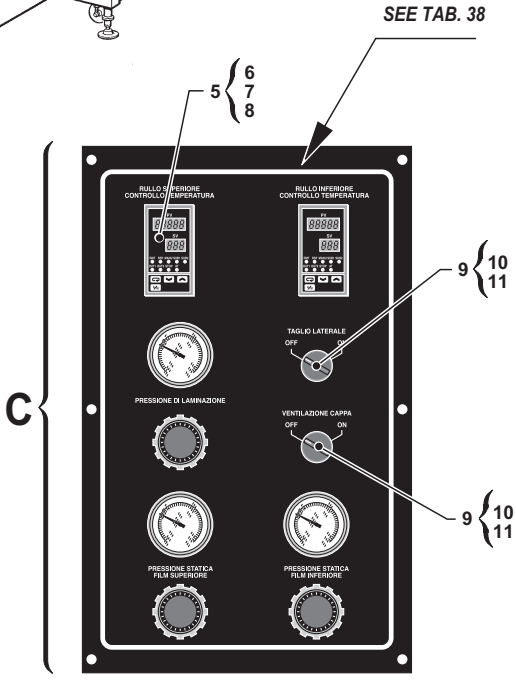




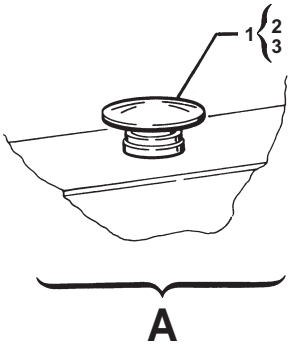




SEE ALSO TAB.42



PART NUMBER	TAB.	POS.	SERIAL NUMBER	DESCRIPTION
062-00-025-00	41a	1	==	EMERGENCY PRESS TO LOCK PUSH BUTTON 077 (ASSY)
062-00-025-01	41a	2	==	EMERGENCY PRESS TO LOCK PUSH BUTTON WITH NC CONTACT 077 RE01
062-00-025-02	41a	3	==	RED MUSHROOM HEAD FOR PRESS TO LOCK PUSH BUTTON 077 RER
062-00-027-00	41a	4	≤062.03.239	YELLOW LIGHT PUSH BUTTON (ASSY)
510.14.061.04	41a	4	≥062.03.240	YELLOW LIGHT PUSH BUTTON (1NO) ZB4 (ASSY)
062-00-027-01	41a	5	≤062.03.239	YELLOW LIGHT PUSH BUTTON ZB2-BW35
510-14-061-05	41a	5	≥062.03.240	YELLOW LIGHT PUSH BUTTON ZB4-BW 353 (HEAD)
062-00-027-02	41a	6	≤062.03.239	LAMP HOLDER + CONTACT N0 ZB2-BW061
510-14-061-06	41a	6	≥062.03.240	YELLOW LIGHT PUSH BUTTON ZB4-BW 0B51 (LED-HOLDER+1NO)
062-00-030-00	41a	7	≤062.03.239	GREEN PILOT LAMP (ASSY)
510-14-061-20	41a	7	≥062.03.240	GREEN PILOT LAMP ZB4 (ASSY)
062-00-030-01	41a	8	≤062.03.239	GREEN PILOT LAMP ZB2-BV03
510-14-061-21	41a	8	≥062.03.240	GREEN PILOT LAMP ZB4-BV 033 (HEAD)
062-00-030-02	41a	9	≤062.03.239	LAMP HOLDER ZB2-BV6
510-14-061-22	41a	9	≥062.03.240	GREEN PILOT LAMP ZB4-BV B3 (LED-HOLDER)
062-00-032-00	41a	10	≤062.03.239	GREEN PUSH BUTTON (ASSY)
510-14-061-40	41a	10	≥062.03.240	GREEN PUSH BUTTON (1NO) ZB4 (ASSY)
062-00-032-01	41a	11	≤062.03.239	GREEN PUSH BUTTON ZB2-BA3
510-14-061-41	41a	11	≥062.03.240	GREEN PUSH BUTTON ZB4-BA3 (HEAD)
062-00-032-02	41a	12	≤062.03.239	CONTACT NO ZB2-BZ101
510-14-061-98	41a	12	≥062.03.240	CONTACT NO ZB4-BZ101
062-00-034-00	41a	13	≤062.03.239	3 POSITION YELLOW LIGHT SELECTOR (ASSY)
510-14-061-52	41a	13	≥062.03.240	3 POS. YELLOW LIGHT SELECTOR (1NO+1NO) ZB4 (ASSY)
510-14-061-53	41a	14	≥062.03.240	3 POS. YELLOW LIGHT SELECTOR ZB4-BK 1353 (HEAD)
062-00-034-02	41a	15	≤062.03.239	LAMP HOLDER + CONTACTS NO/NO ZB2-BW063
510-14-061-54	41a	15	≥062.03.240	3 POS. YELLOW LIGHT SELECTOR ZB4-BW 0B53 (LED-HOLDER+1NO+1NO)
062-00-021-01	41a	16	≤062.03.239	LIGHT INDICATOR BA9S 30V 2W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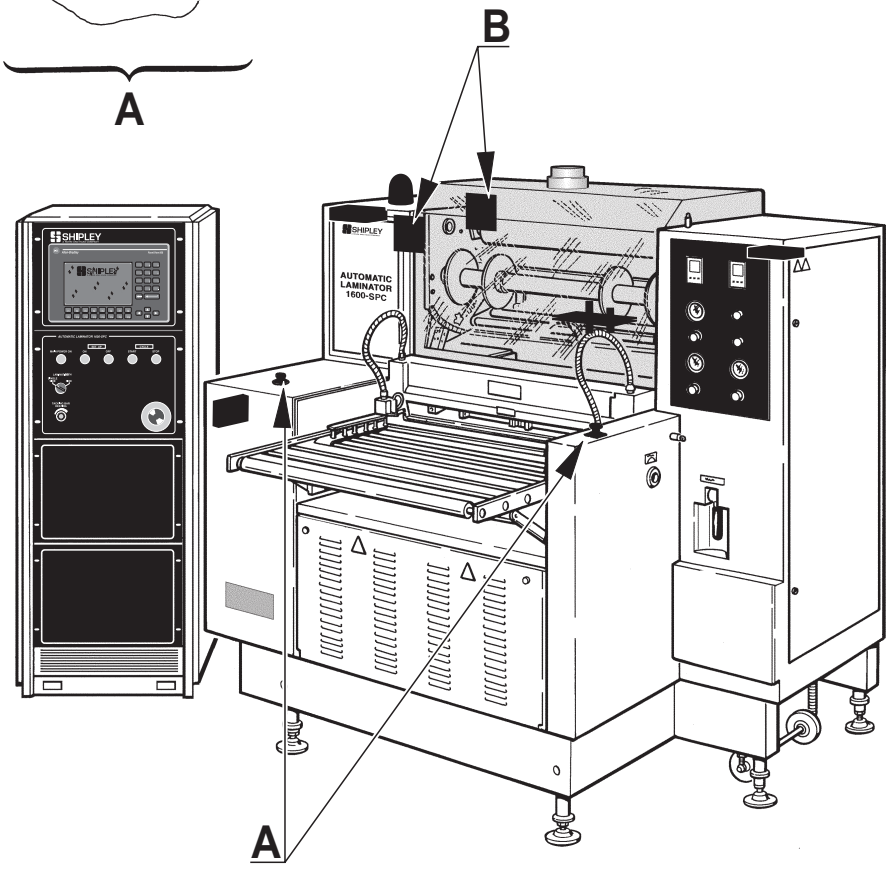
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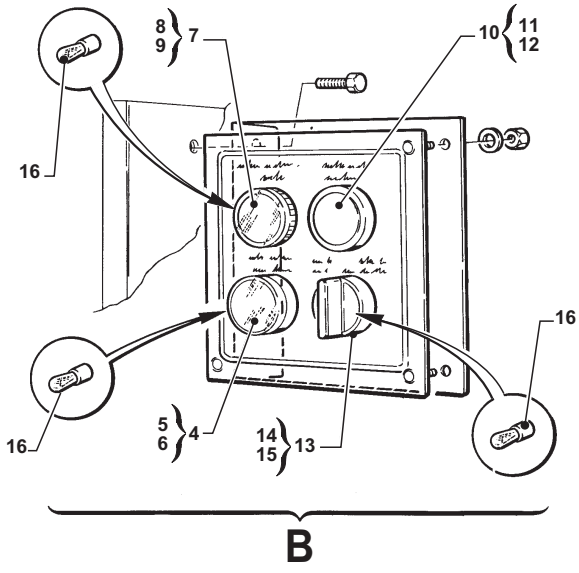
SHIPLEY
AUTOMATIC LAMINATOR 1600-SPC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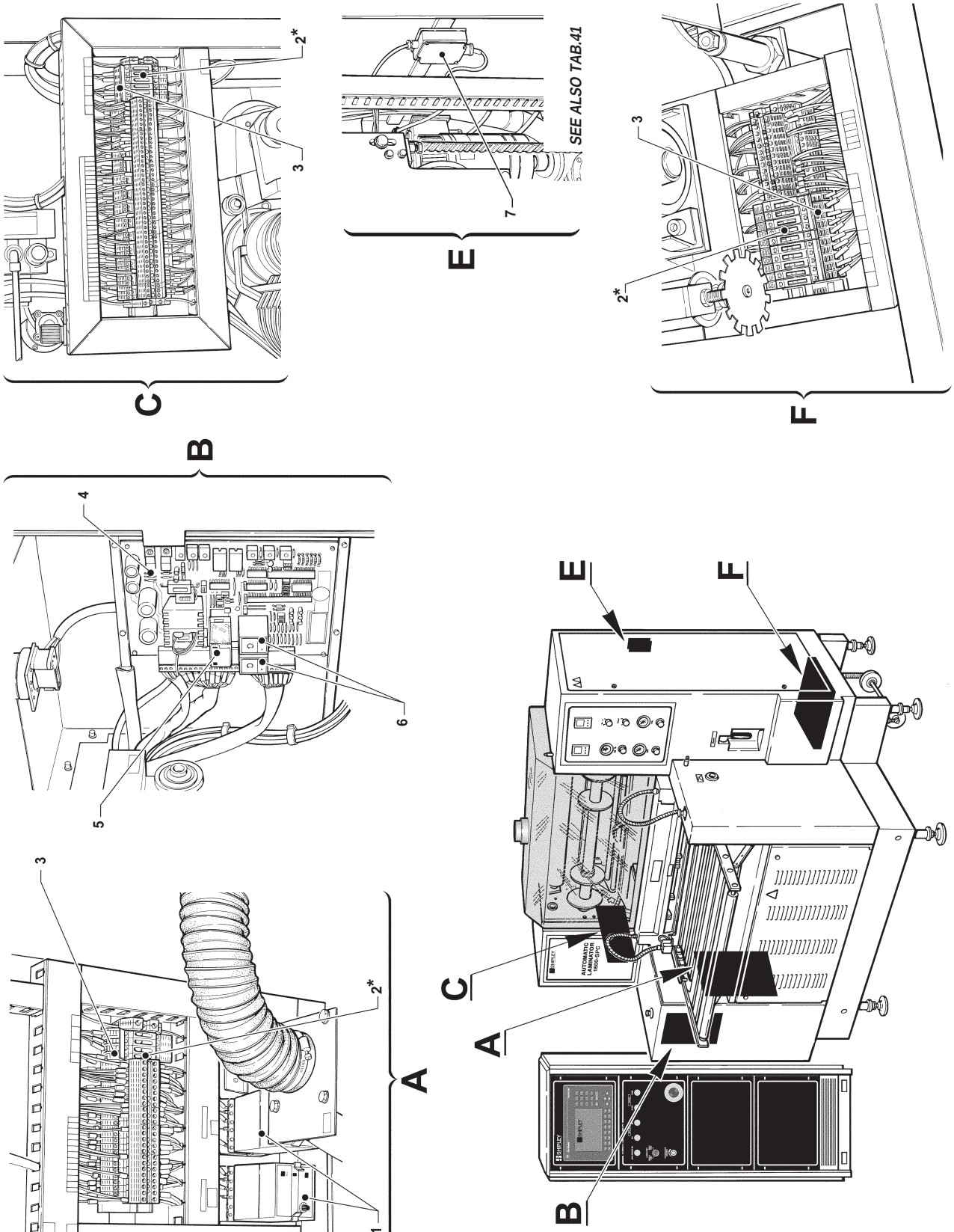
PART NUMBER	TAB.	POS.	SERIAL NUMBER	DESCRIPTION
062-00-042-00	42	1	==	AMPLIFIER FOR PHOTOCELL PS 930 A-K1
062-00-085-00	42	2*	==	GLASS FUSE 5x20mm I=2A M
062-00-099-00	42	*	==	GLASS FUSE 5x20mm I=0,8A M
062-00-073-01	42	*	==	GLASS FUSE 5x20mm I=1A M
062-00-047-00	42	3	==	FUSE HOLDER TERMINAL BLOCK EURO S4/35
062-00-043-00	42	4	==	CENTERING UNIT CONTROL BOARD E011.00.02
062-00-082-00	42	5	==	4 CONTACT RELAY MY4 US SV 24VDC
062-00-084-00	42	6	==	AMPLIFIER FOR MINIATURE PHOTOCELL E3C GE4
062-00-110-00	42	7	≥062.03.209 ≤062.03.246	I.R. SENSOR RAYTEK MI 25
510-17-065-10	42	7	≥062.03.247	I.R. SENSOR RAY MI D02LT CB3 FOR 1600-SPC (ASSY)

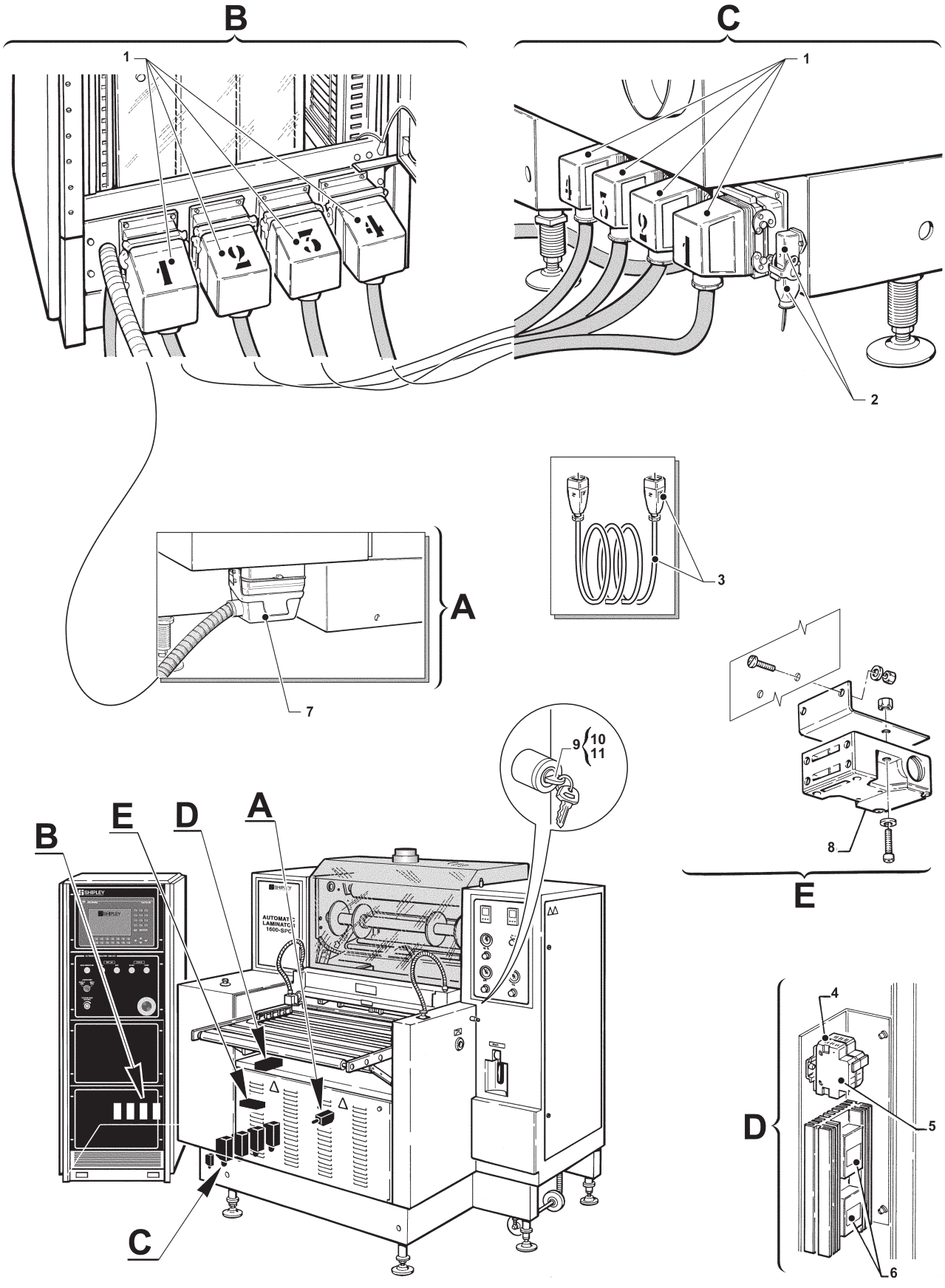
* For the correct layout of the fuses, refer to the electrical drawings.



DUESSE design - SAMARATE (VA)

* For the correct layout of the fuses, refer to the electrical drawings.

PART NUMBER	TAB.	POS.	SERIAL NUMBER	DESCRIPTION
062-00-044-00	43	1	==	32 POLE FRAME-MOUNTED CONNECTOR TYPE CH (ASSY)
062-00-100-10	43	2	≥062.03.209	4 POLE CK CONNECTOR ILME (ASSY)
062-00-122-00	43	3	≥062.03.209	CABLE AND CONNECTORS FOR UNITS IN LINE L=5mt (ASSY)
062-00-046-00	43	4	==	2P FUSE HOLDER L512
062-00-070-00	43	5	==	CERAMIC FUSE 10,3x38 mm I = 16A
062-00-045-00	43	6	==	SOLID STATE RELAY RA 2450
062-00-115-00	43	7	≥062.03.209	72 POLE FRAME-MOUNTED CONNECTOR CD TYPE (ASSY)
062-00-022-00	43	8	==	SAFETY MICROSWITCH AZ15 ZVR
062-00-060-00	43	9	≤062.03.239	2 POSITION KEY SELECTOR (ASSY)
510-14-061-90	43	9	≥062.03.240	2 POS. KEY SELECTOR key n.455 (1NO) ZB4 (ASSY)
062-00-060-01	43	10	≤062.03.239	2 POSITION KEY SELECTOR 080 SCD01 + KEY 3095
510-14-061-91	43	10	≥062.03.240	2 POS. KEY SELECTOR key n.455 ZB4-BG2 (HEAD)
062-00-060-02	43	11	≤062.03.239	CONTACT N0 080 BF 10V
510-14-061-98	43	11	≥062.03.240	CONTACT NO ZB4-BZ101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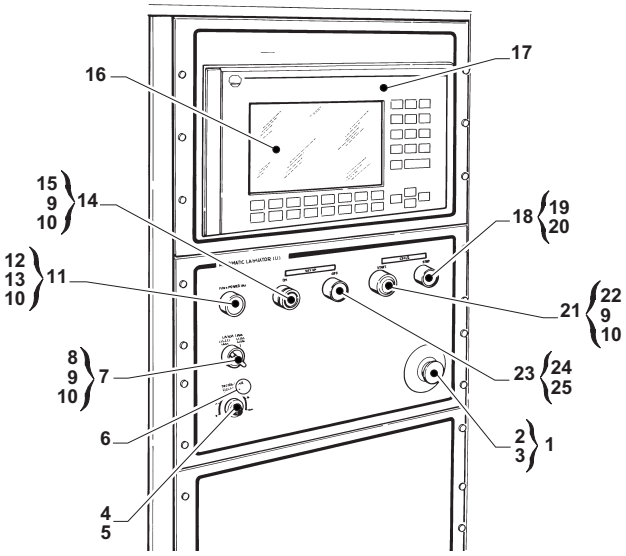
PART NUMBER	TAB.	POS.	SERIAL NUMBER	DESCRIPTION
062-00-025-00	44	1	==	EMERGENCY PRESS TO LOCK PUSH BUTTON 077 (ASSY)
062-00-025-01	44	2	==	EMERGENCY PRESS TO LOCK PUSH BUTTON WITH NC CONTACT 077 RE01
062-00-025-02	44	3	==	RED MUSHROOM HEAD FOR PRESS TO LOCK PUSH BUTTON 077 RER
062-00-114-00	44	4	≥062.03.209	POTENTIOMETER 534 DOUBLE D.22 5K+5K RV 534 D 5K
062-00-114-01	44	5	≥062.03.209	POTENTIOMETER KNOB DEMULT. D.22 SPECTROL M16.1.11
062-00-053-00	44	6	==	YELLOW LED ø 3
062-00-054-00	44	7	≤062.03.239	2 POSITION YELLOW LIGHT SELECTOR (ASSY)
510-14-061-66	44	7	≥062.03.240	2 POS. YELLOW LIGHT SELECTOR (1NO) ZB4 (ASSY)
062-00-054-01	44	8	≤062.03.239	2 POSITION YELLOW LIGHT SELECTOR ZB2-BK125
510-14-061-67	44	8	≥062.03.240	2 POS. YELLOW LIGHT SELECTOR ZB4-BK 1253 (HEAD)
062-00-027-02	44	9	≤062.03.239	LAMP HOLDER + CONTACT N0 ZB2-BW061
510-14-061-68	44	9	≥062.03.240	2 POS. YELLOW LIGHT SELECTOR ZB4-BW 0B51 (LED-HOLDER+1NO)
062-00-021-01	44	10	≤062.03.239	LIGHT INDICATOR BA9S 30V 2W
062.00.055.03	44	11	≤062.03.239	WHITE PILOT LAMP (ASSY)
510-14-061-16	44	11	≥062.03.240	WHITE PILOT LAMP ZB4 (ASSY)
062.00.055.04	44	12	≤062.03.239	WHITE PILOT LAMP ZB2-BV01
510-14-061-17	44	12	≥062.03.240	WHITE PILOT LAMP ZB4-BV 013 (HEAD)
062-00-030-02	44	13	≤062.03.239	LAMP HOLDER ZB2-BV6
510-14-061-18	44	13	≥062.03.240	WHITE PILOT LAMP ZB4-BV B1 (LED-HOLDER)
062-00-056-00	44	14	≤062.03.239	GREEN LIGHT PUSH BUTTON (ASSY)
510-14-061-00	44	14	≥062.03.240	GREEN LIGHT PUSH BUTTON (1NO) ZB4 (ASSY)
062-00-056-01	44	15	≤062.03.239	GREEN LIGHT PUSH BUTTON ZB2-BW33
510-14-061-01	44	15	≥062.03.240	GREEN LIGHT PUSH BUTTON ZB4-BW 333 (HEAD)
062-00-113-00	44	16	≥062.03.209	PANEL VIEW 900 with DH 485 communication
			≤062.03.249	A.B.2711-K9A2
062-00-113-01	44	16	≥062.03.250	PANEL VIEW 1000 WITH DH 485 COMMUNICATION A.B.2711-K10G3
062-00-113-10	44	17	≥062.03.209	PV A.B. - Memory card 2Mb ATA FLASH A.B.2711-NM22
062-00-059-00	44	18	≤062.03.239	BLACK PUSH BUTTON (ASSY)
510-14-061-36	44	18	≥062.03.240	BLACK PUSH BUTTON (1NO) ZB4 (ASSY)
062-00-059-01	44	19	≤062.03.239	BLACK PUSH BUTTON ZB2-BA2
510-14-061-37	44	19	≥062.03.240	BALCK PUSH BUTTON ZB4-BA2 (HEAD)
062-00-059-02	44	20	≤062.03.239	CONTACT N0 ZB2-BZ101
510-14-061-98	44	20	≥062.03.240	CONTACT NO ZB4-BZ101
062-00-027-00	44	21	≤062.03.239	YELLOW LIGHT PUSH BUTTON (ASSY)
510-14-061-04	44	21	≥062.03.240	YELLOW LIGHT PUSH BUTTON (1NO) ZB4 (ASSY)
062-00-027-01	44	22	≤062.03.239	YELLOW LIGHT PUSH BUTTON ZB2-BW35
510-14-061-05	44	22	≥062.03.240	YELLOW LIGHT PUSH BUTTON ZB4-BW 353 (HEAD)
062-00-058-00	44	23	≤062.03.239	RED PUSH BUTTON (ASSY)
510-14-061-32	44	23	≥062.03.240	RED PUSH BUTTON (1NC) ZB4 (ASSY)
062-00-058-01	44	24	≤062.03.239	RED PUSH BUTTON ZB2-BA4
510-14-061-33	44	24	≥062.03.240	RED PUSH BUTTON ZB4-BA4 (HEAD)
062-00-058-02	44	25	≤062.03.239	CONTACT NC ZB2-BZ102
510-14-061-99	44	25	≥062.03.240	CONTACT NC ZB4-BZ102
510-14-061-02	44	26	≥062.03.240	GREEN LIGHT PUSH BUTTON ZB4-BW 0B31 (LED-HOLDER+1NO)
510-14-061-06	44	27	≥062.03.240	YELLOW LIGHT PUSH BUTTON ZB4-BW 0B51 (LED-HOLDER+1NO)

≤062.03.239



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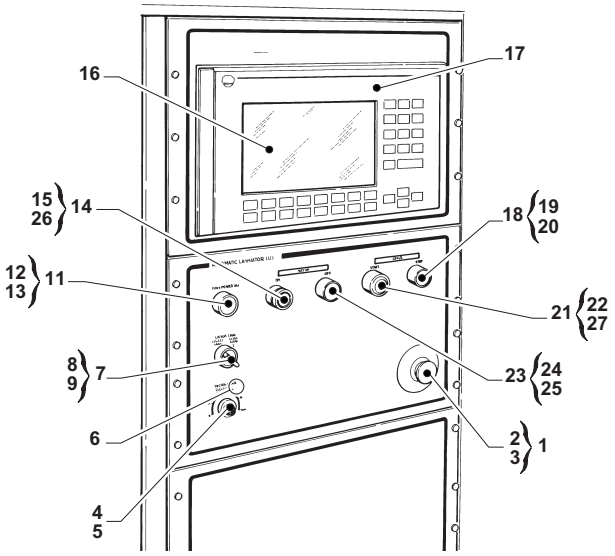
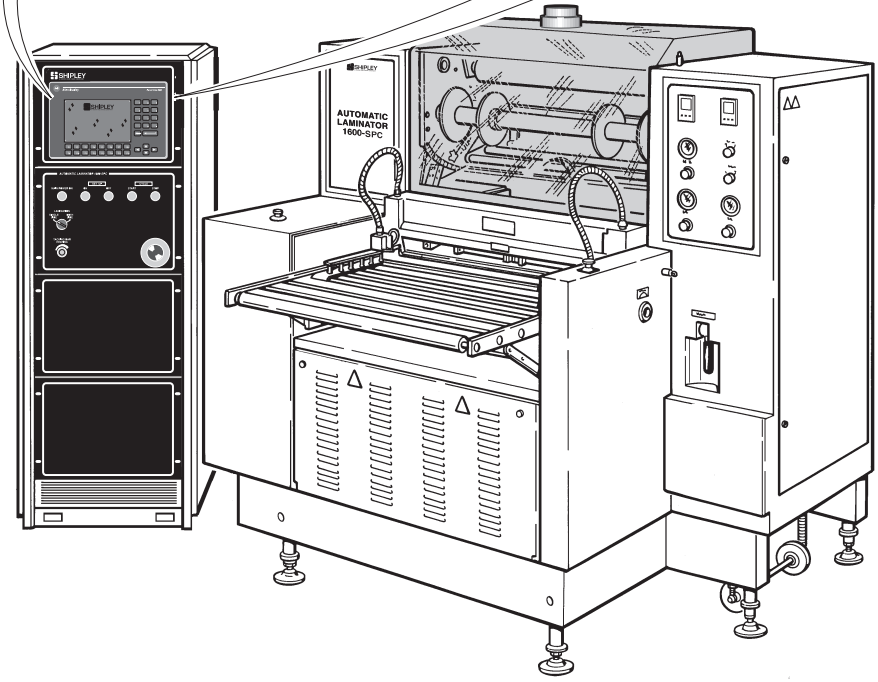
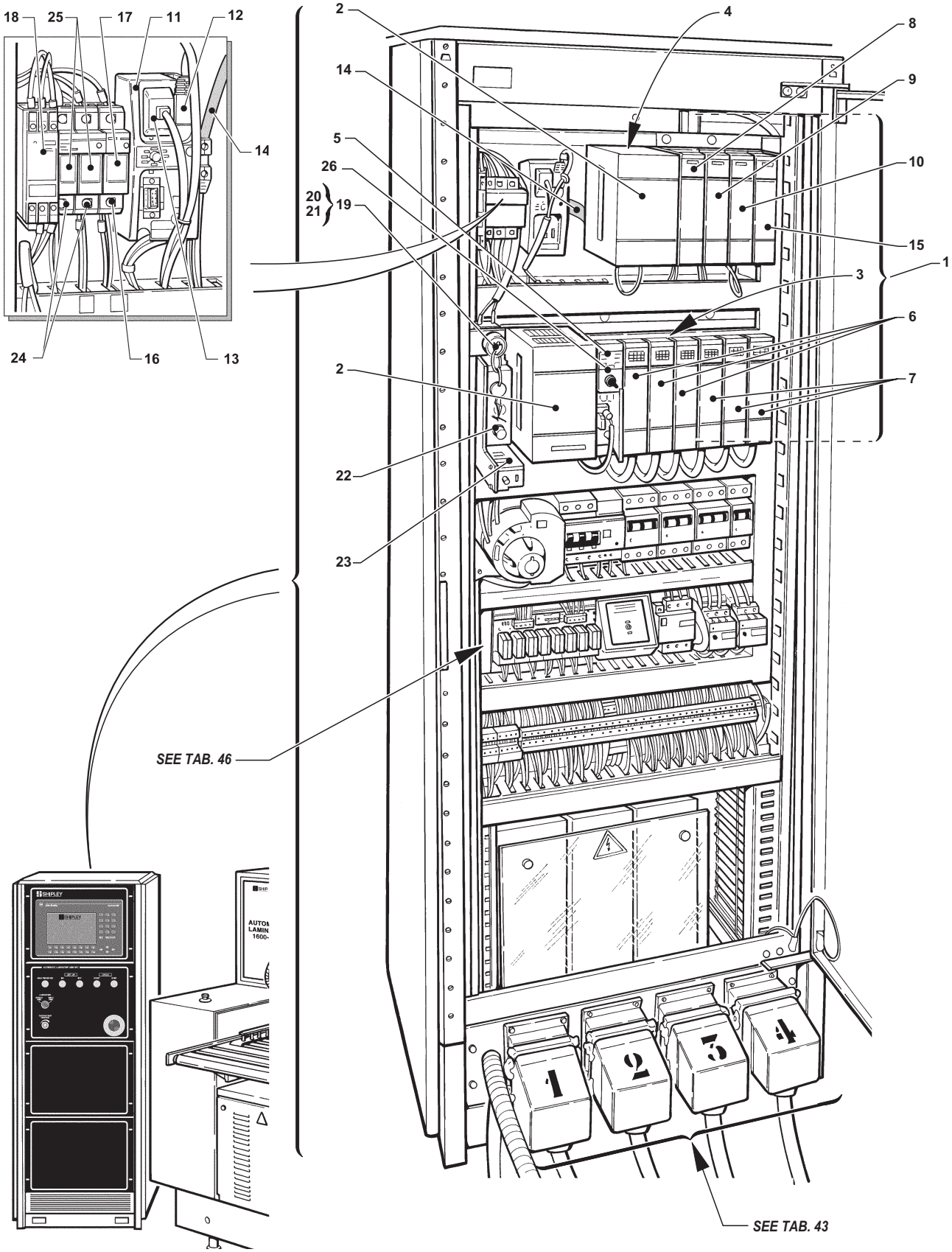




PART NUMBER	TAB.	POS.	SERIAL NUMBER	DESCRIPTION
062-00-111-00	45	1	≥062.03.209	PLC A.B. FOR 1600-SPC (ASSY)
062-00-111-01	45	2	≥062.03.209	PLC A.B. - POWER SUPPLY MODULE 120/ 240V A.B.1746-P2
062-00-111-02	45	3	≥062.03.209	PLC A.B. - 7 MODULES BUS A.B.1746-A7
062-00-111-03	45	4	≥062.03.209	PLC A.B. - 4 MODULES BUS A.B.1746-A4
062-00-111-04	45	5	≥062.03.209	PLC A.B. - CPU SLC 5/05 WITH ETHERNET PORT 32KB A.B.1747-L551
062-00-111-05	45	6	≥062.03.209	PLC A.B. - INPUTS DIGITAL MODULE 24VAC-DC A.B.1746-IN16
062-00-111-06	45	7	≥062.03.209	PLC A.B. - OUTPUTS DIGITAL MODULE 24V-DC A.B.1746-OB16
062-00-111-07	45	8	≥062.03.209	PLC A.B. - ANALOGUE INPUTS MODULE (0-10V) A.B.1746-NI4
062-00-111-08	45	9	≥062.03.209	PLC A.B. - ANALOGUE INPUTS/OUTPUTS MODULE (OUT 0-10V) A.B.1746-NIO4V
062-00-111-09	45	10	≥062.03.209	PLC A.B. - ANALOGUE INPUTS/OUTPUTS MODULE (OUT 0-20MA) A.B.1746-NIO4I
062-00-111-10	45	11	≥062.03.209	PLC A.B. - INTERFACE / CONDITIONER A.B.1761 - AIC +NET
062-00-111-11	45	12	≥062.03.209	PLC A.B. - PLC - AIC +NET CABLE A.B.1761-CBL-PM02,SER.B
062-00-111-12	45	13	≥062.03.209	PLC A.B. - PANEL VIEW - AIC +NET CABLE A.B.1761-CBL-AS03,SER.A
062-00-111-13	45	14	≥062.03.209	PLC A.B. - COMMUNICATION CABLE A.B.1746-C9
062-00-111-14	45	15	≥062.03.209	PLC A.B. - SLOT FILLER A.B.1746-N2
062-00-069-00	45	16	==	1P FUSE HOLDER L501
062-00-070-00	45	17	==	CERAMIC FUSE 10,3X38MM I=16A FF
062-00-119-00	45	18	≥062.03.209	PHASE SEQUENCE RELAY MODULE IMF SCHIELE
062-00-060-00	45	19	≤062.03.239	2 POSITION KEY SELECTOR (ASSY)
510-14-061-90	45	19	≥062.03.240	2 POS. KEY SELECTOR KEY N.455 (1NO) ZB4 (ASSY)
062-00-060-01	45	20	≤062.03.239	2 POSITION KEY SELECTOR 080 SCD01 + KEY 3095
510-14-061-91	45	20	≥062.03.240	2 POS. KEY SELECTOR KEY N.455 ZB4-BG2 (HEAD)
062-00-060-02	45	21	≤062.03.239	CONTACT N0 080 BF 10V
510-14-061-98	45	21	≥062.03.240	CONTACT NO ZB4-BZ101
062-00-062-00	45	22	==	3PH OK LIGHT INDICATOR 105-DTL 500
062-00-063-00	45	23	==	3P MICROSWITCH 114-FCT-03
062-00-046-00	45	24	==	2 P FUSE HOLDER L512
062-00-070-02	45	25	≥062.03.209	CERAMIC FUSE 10,3X38MM I=4A
062-00-112-00	45	26	≥062.03.209	PLC A.B. - EEPROM MODULE 28+4 KB A.B. 1747-M11


18
25
17
11
12
14
24
16
13
2
4
8
14
9
5
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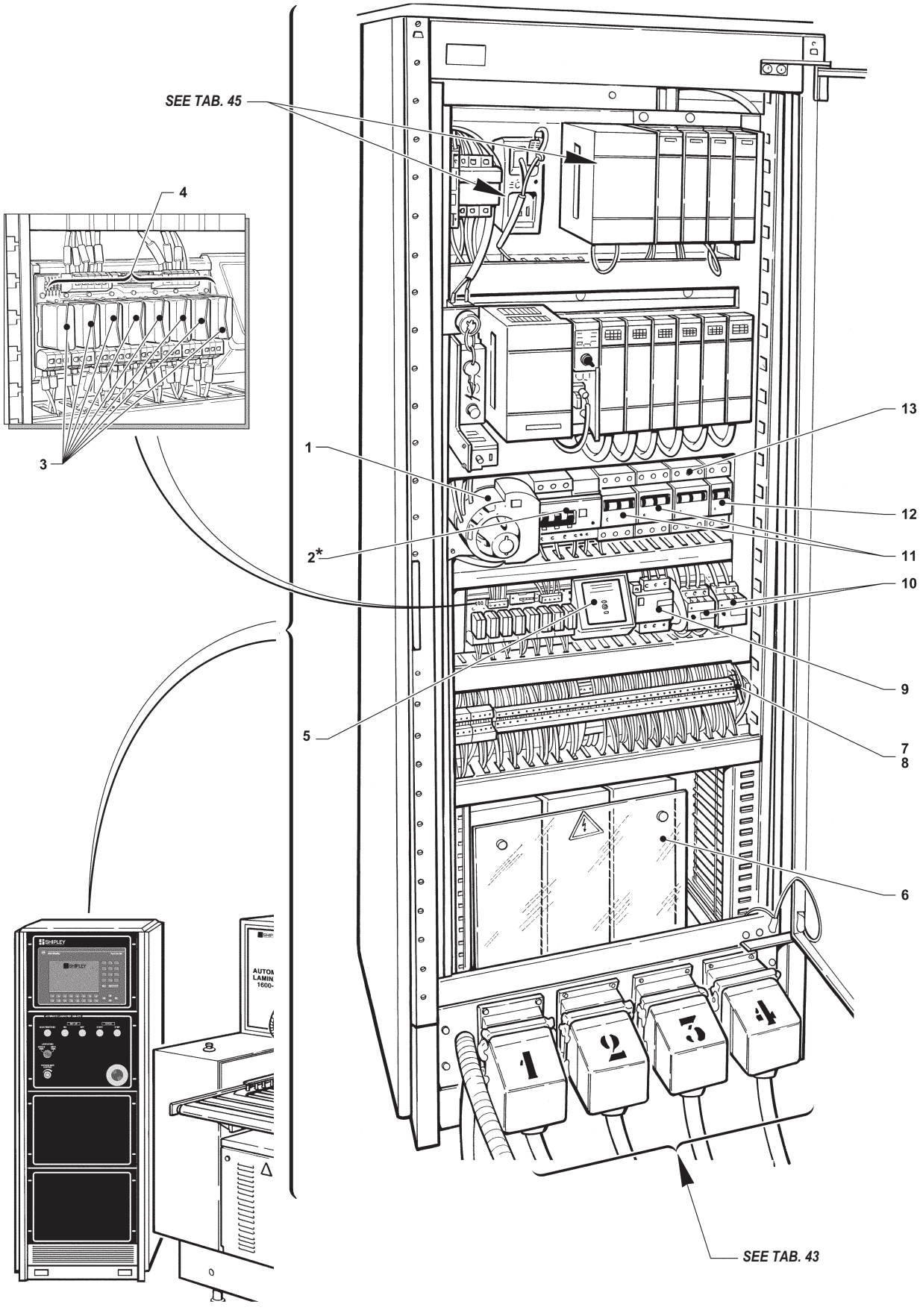
26
20
21
19
15
1
3
6
2
7
22
23
SEE TAB. 46
SEE TAB. 43

PART NUMBER	TAB.	POS.	SERIAL NUMBER	DESCRIPTION
062-00-064-00	46	1	==	3P POWER SWITCH FOR PANEL RA 50-1753G
062-00-117-07	46	2*	==	3P MODULAR MAGNETIC SWITCH I=16A ND 316
062-00-117-08	46	*	==	3P MODULAR MAGNETIC SWITCH I=20A ND 320
062-00-117-09	46	*	==	3P MODULAR MAGNETIC SWITCH I=25A ND 325
062-00-120-00	46	3	==	2 CONTACT RELAY 40.52 24VDC
062-00-075-00	46	4	==	8 RELAY MODULE 111356
062-00-096-00	46	5	==	MINIATURE SWITCH MX1D + 641.00.002
062-00-076-00	46	6	==	3PH AUTOTRANSFORMER 11,5 KVA
062-00-047-00	46	7	==	FUSE HOLDER TERMINAL BLOCK EURO S4/35
062-00-073-01	46	8	==	GLASS FUSE 5x20mm I=1A M
062-00-071-00	46	9	==	3P MAGNETIC SWITCH I=10:16A 3VU13 00-1MM00
062-00-072-00	46	10	==	3P CONTACTOR 220V COIL 50/60 Hz 3TF42 10-0AN2
062-00-067-00	46	11	==	3P MAGNETIC SWITCH I=25A 5Sx2 325-7
062-00-068-00	46	12	==	2P MAGNETIC SWITCH I=8A 5Sx2 208-7
062-00-095-00	46	13	==	3P MAGNETIC SWITCH I=10A 5Sx2 310-7

* For the correct value of the current refer to the chapter “Technical features” in the INTRODUCTION section

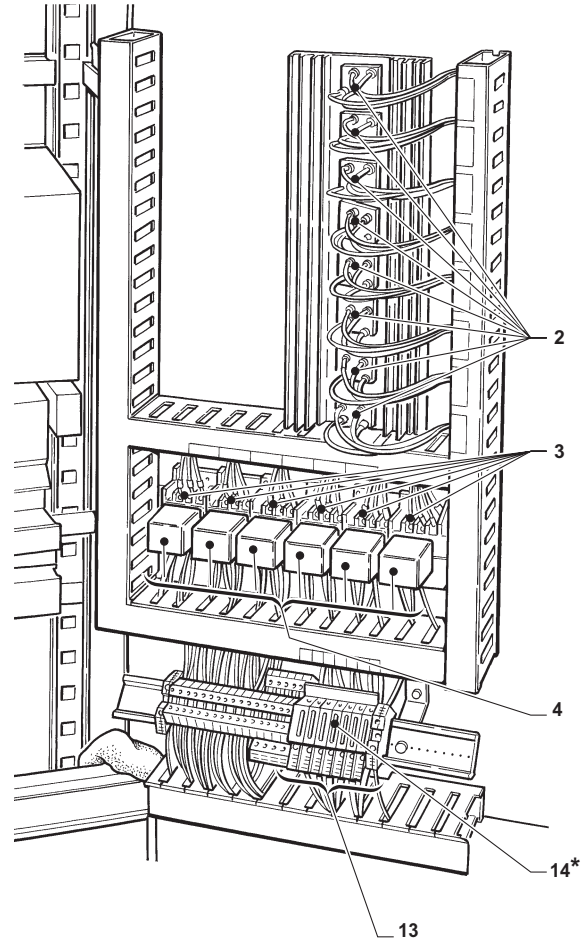


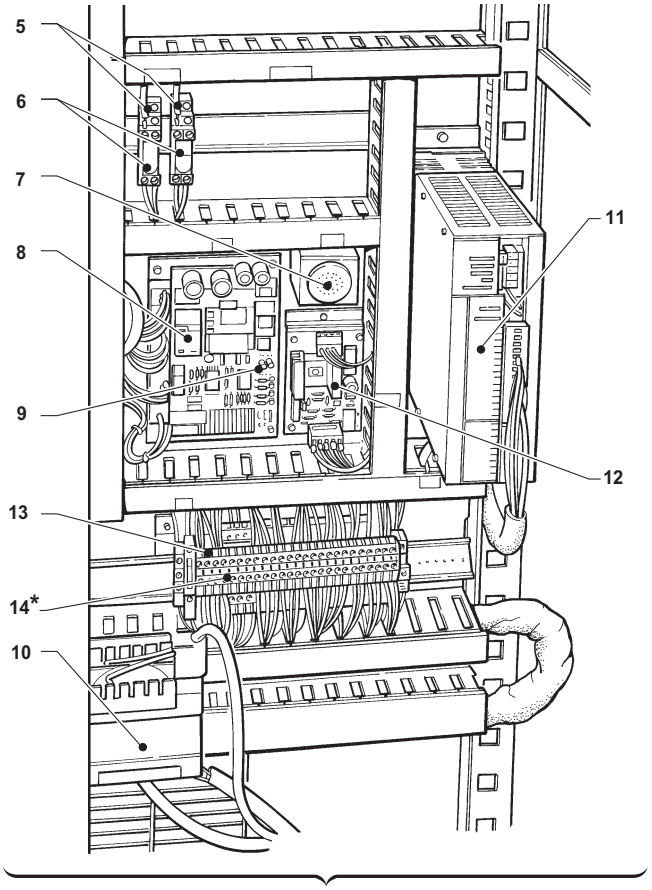
DUESSE design - SAMARATE (VA)

* For the correct value of the current refer to the page with electrical features of INTRODUCTION section

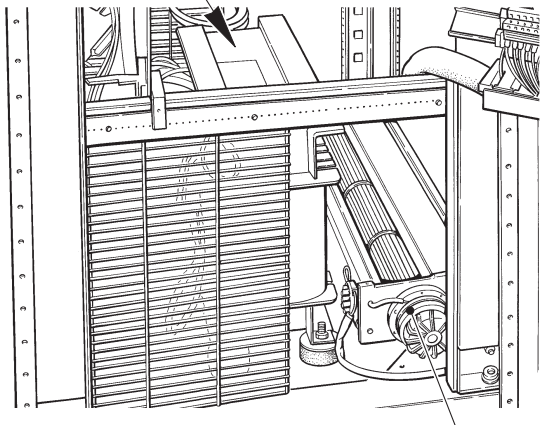
PART NUMBER	TAB.	POS.	SERIAL NUMBER	DESCRIPTION
062-00-090-00	47	1	==	TANGENTIAL TURBINE 16610
062-00-088-00	47	2	==	3PH RECTIFIERS SKD 25/4
062-00-087-00	47	3	==	3 CONTACT RELAY BASE PTF 11AE
062-00-086-00	47	4	==	3 CONTACT RELAY LY3 US SV 24VDC
062-00-121-00	47	5	==	2 CONTACT RELAY BASE 95.65
062-00-120-00	47	6	==	2 CONTACT RELAY 40.52 24VDC
062-00-083-00	47	7	==	ACOUSTIC ALARM VASC 535 B1
062-00-082-00	47	8	==	4 CONTACT RELAY MY4 US SV 24VDC
062-00-081-00	47	9	==	DRIVER FOR FRONT EDGE REGISTER E062.00.01
062-00-077-01	47	10	==	INDUCTANCE L13 FOR DRIVER
062-00-109-00	47	11	==	DRIVER FOR MOTOR DC D 140x8/16
062-00-079-00	47	12	==	PADS HEATING COMMAND E062.00.04
062-00-047-00	47	13	==	FUSE HOLDER TERMINAL BLOCK EURO S4/35
062-00-085-00	47	14*	==	GLASS FUSE 5x20mm I=2A M
062-00-085-01	47	*	==	GLASS FUSE 5x20mm I=3A M
062-00-080-01	47	*	==	GLASS FUSE 5x20mm I=6A F
062-00-073-01	47	*	==	GLASS FUSE 5x20mm I=1A M

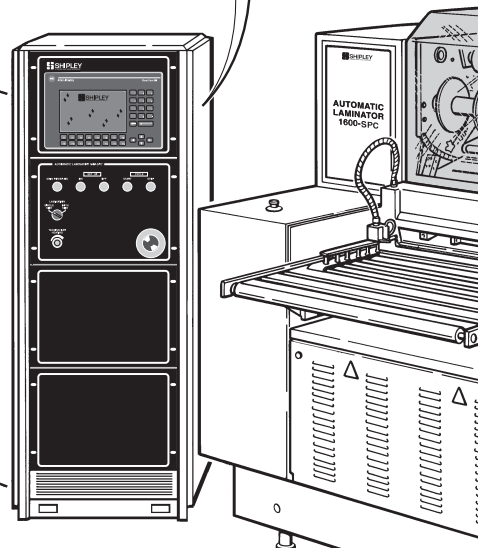
* For the correct layout of the fuses, refer to the electrical drawings.





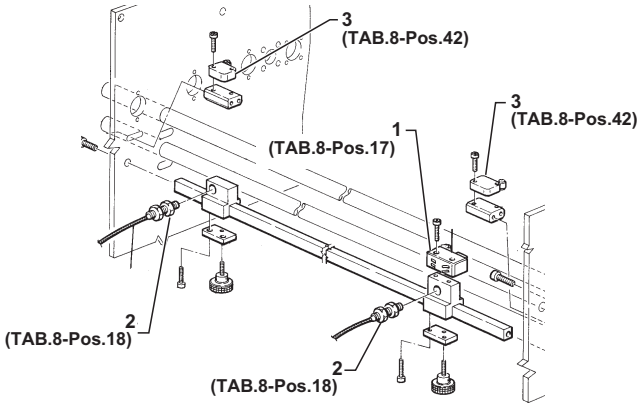
SEE TAB. 46

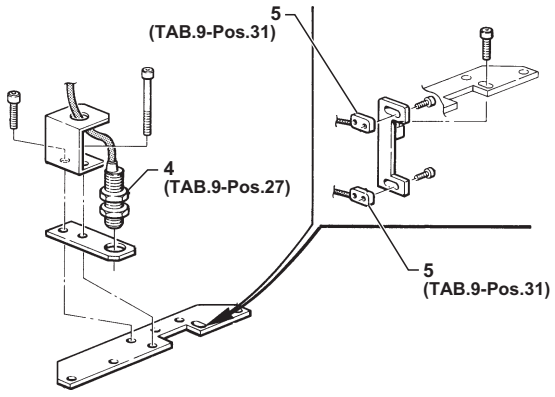


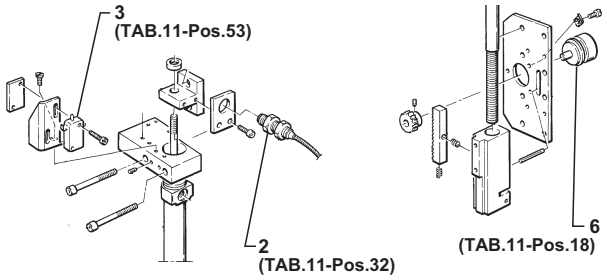


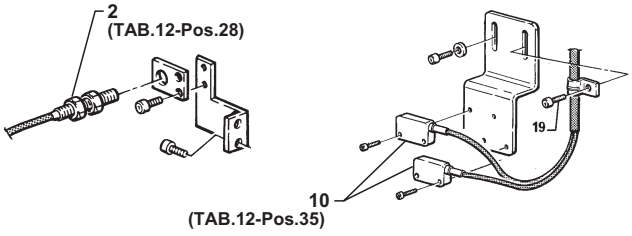
* For the correct layout of the fuses, refer to the electrical drawings.

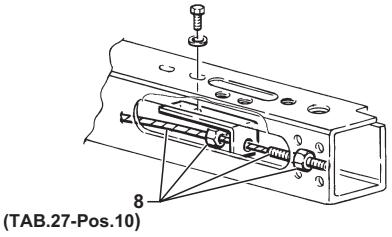
PART NUMBER	TAB.	POS.	SERIAL NUMBER	DESCRIPTION
062-00-003-00	48	1	==	MICROSWITCH Z15 GW22
062-00-004-00	48	2	==	PROXIMITY SWITCH ø 12 mm 3RG 4012-0AB00
062-00-050-00	48	3	==	MICROSWITCH V165 1 A5
062-00-005-00	48	4	==	CYLINDRICAL PHOTOCELL E3F 2DS10 B4 N
062-00-006-00	48	5	==	MINIATURE PHOTOCELL E3C S10
062-00-010-00	48	6	==	POTENTIOMETRIC TRANSDUCER P4701 A 502 5Kohm
062-00-014-00	48	7	==	ROLLS ROTATION CONTROL E062.00.02
062-00-017-01	48	8	==	PROXIMITY SWITCH ø 8E2EG-X1R5B1
062-00-011-00	48	9	==	PROXIMITY SWITCH ø 12 E2EG-X2B1
062-00-039-00	48	10	==	PHOTOCELL RT 410-1
062-00-007-00	48	11	==	PHOTOCELL FOR FIBRE OPTICS FVDM 15P5103
062-00-008-00	48	12	==	FIBRE OPTICS 16 mm FUF 025B 9023


3
(TAB.8-Pos.42)
3
(TAB.8-Pos.42)
1
(TAB.8-Pos.17)
2
(TAB.8-Pos.18)
2
(TAB.8-Pos.18)


5
(TAB.9-Pos.31)
4
(TAB.9-Pos.27)
5
(TAB.9-Pos.31)


3
(TAB.11-Pos.53)
2
(TAB.11-Pos.32)
6
(TAB.11-Pos.18)


2
(TAB.12-Pos.28)
19
10
(TAB.12-Pos.35)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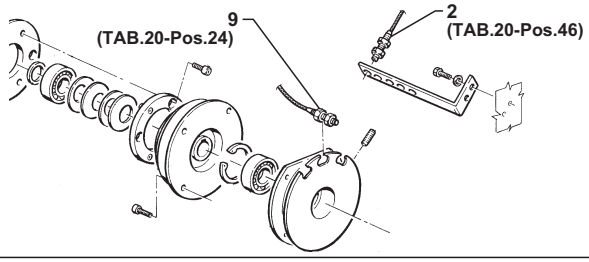
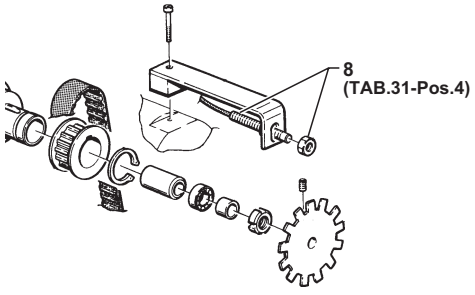
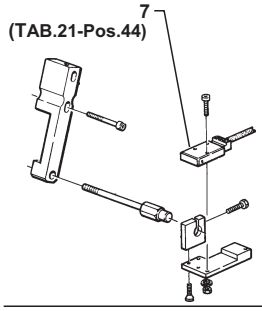
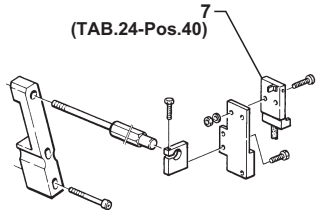
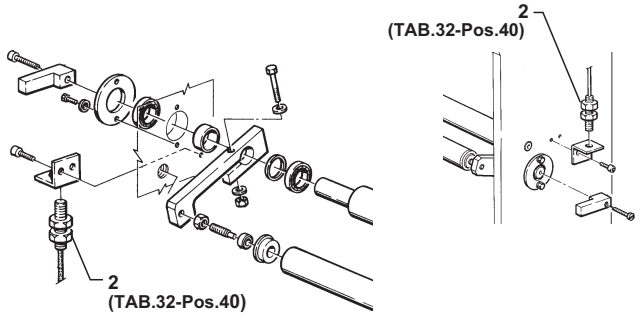
(TAB.27-Pos.10)

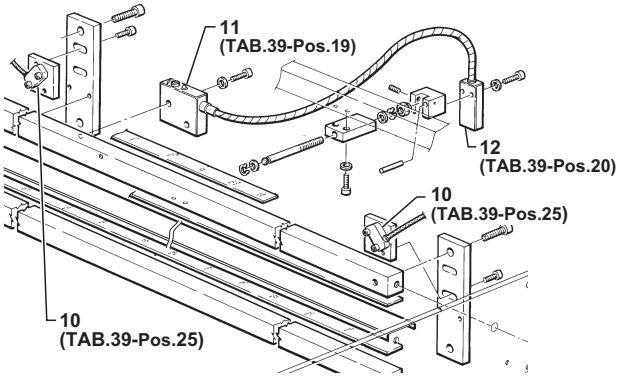

9
(TAB.20-Pos.24)
2
(TAB.20-Pos.46)


8
(TAB.31-Pos.4)


7
(TAB.21-Pos.44)


7
(TAB.24-Pos.40)


2
(TAB.32-Pos.40)
2
(TAB.32-Pos.40)


11
(TAB.39-Pos.19)
12
(TAB.39-Pos.20)
10
(TAB.39-Pos.25)
10
(TAB.39-Pos.25)

PART NUMBER	SERIAL NUMBER	TAB.	POS.
062-00-003-00	==	48	1
062-00-004-00	==	48	2
062-00-005-00	==	48	4
062-00-006-00	==	48	5
062-00-007-00	==	48	11
062-00-008-00	==	48	12
062-00-010-00	==	48	6
062-00-011-00	==	48	9
062-00-014-00	==	48	7
062-00-017-01	==	48	8
062-00-021-00	≤062.03.249	41	1
062-00-021-01	≤062.03.239	41a	16
062-00-021-01	≤062.03.239	44	10
062-00-021-02	≤062.03.249	41	2
062-00-022-00	==	41	4
062-00-022-00	==	43	8
062-00-024-00	==	41	12
062-00-025-00	==	41a	1
062-00-025-00	==	44	1
062-00-025-01	==	41a	2
062-00-025-01	==	44	2
062-00-025-02	==	41a	3
062-00-025-02	==	44	3
062-00-027-00	≤062.03.239	41a	4
062-00-027-00	≤062.03.239	44	21
062-00-027-01	≤062.03.239	41a	5
062-00-027-01	≤062.03.239	44	22
062-00-027-02	≤062.03.239	41a	6
062-00-027-02	≤062.03.239	44	9
062-00-030-00	≤062.03.239	41a	7
062-00-030-01	≤062.03.239	41a	8
062-00-030-02	≤062.03.239	41a	9
062-00-030-02	≤062.03.239	44	13
062-00-032-00	≤062.03.239	41a	10
062-00-032-01	≤062.03.239	41a	11
062-00-032-02	≤062.03.239	41a	12
062-00-034-00	≤062.03.239	41a	13
062-00-034-00	≤062.03.239	414	14
062-00-034-02	≤062.03.239	41a	15
062-00-039-00	==	48	10
062-00-042-00	==	42	1
062-00-043-00	==	42	4
062-00-044-00	==	43	1
062-00-045-00	==	43	6
062-00-046-00	==	43	4
062-00-046-00	==	45	24
062-00-047-00	==	42	3
062-00-047-00	==	46	7
062-00-047-00	==	47	13
062-00-049-00	≤062.03.239	41	9
062-00-049-01	≤062.03.239	41	10
062-00-050-00	==	48	3
062-00-053-00	==	44	6
062-00-054-00	≤062.03.239	44	7
062-00-054-01	≤062.03.239	44	8
062.00.055.03	≤062.03.239	44	11
062.00.055.04	≤062.03.239	44	12
062-00-056-00	≤062.03.239	44	14
062-00-056-01	≤062.03.239	44	15
062-00-058-00	≤062.03.239	44	23
062-00-058-01	≤062.03.239	44	24
062-00-058-02	≤062.03.239	44	25
062-00-059-00	≤062.03.239	44	18
062-00-059-01	≤062.03.239	44	19
062-00-059-02	≤062.03.239	44	20
062-00-060-00	≤062.03.239	45	19
062-00-060-00	≤062.03.239	43	9
062-00-060-01	≤062.03.239	45	20
062-00-060-01	≤062.03.239	43	10
062-00-060-02	≤062.03.239	41	11
062-00-060-02	≤062.03.239	45	21
062-00-060-02	≤062.03.239	43	11
062-00-062-00	==	45	22
062-00-063-00	==	45	23
062-00-064-00	==	46	1
062-00-067-00	==	46	11
062-00-068-00	==	46	12
062-00-069-00	==	45	16
062-00-070-00	==	43	5
062-00-070-00	==	45	17
062-00-070-02	≥062.03.209	45	25
062-00-071-00	==	46	9
062-00-072-00	==	46	10
062-00-073-01	==	42	2
062-00-073-01	==	46	8
062-00-073-01	==	47	14
062-00-075-00	==	46	4
062-00-076-00	==	46	6
062-00-077-01	==	47	10
062-00-079-00	==	47	12
062-00-080-01	==	47	14
062-00-081-00	==	47	9
062-00-082-00	==	42	5
062-00-082-00	==	47	8
062-00-083-00	==	47	7
062-00-084-00	==	42	6
062-00-085-00	==	42	2
062-00-085-00	==	47	14
062-00-085-01	==	47	14
062-00-086-00	==	47	4
062-00-087-00	==	47	3
062-00-088-00	==	47	2
062-00-090-00	==	47	1
062-00-095-00	==	46	13
062-00-096-00	==	46	5
062-00-099-00	==	42	2
062-00-100-10	≥062.03.209	43	2
062-00-101-00	==	40	10
062-00-102-00	==	40	7
062-00-109-00	==	47	11
062-00-110-00	≥062.03.209 ≤062.03.246	42	7
062-00-111-00	≥062.03.209	45	1
062-00-111-01	≥062.03.209	45	2
062-00-111-02	≥062.03.209	45	3
062-00-111-03	≥062.03.209	45	4
062-00-111-04	≥062.03.209	45	5
062-00-111-05	≥062.03.209	45	6
062-00-111-06	≥062.03.209	45	7
062-00-111-07	≥062.03.209	45	8
062-00-111-08	≥062.03.209	45	9
062-00-111-09	≥062.03.209	45	10
062-00-111-10	≥062.03.209	45	11
062-00-111-11	≥062.03.209	45	12
062-00-111-12	≥062.03.209	45	13
062-00-111-13	≥062.03.209	45	14
062-00-111-14	≥062.03.209	45	15
062-00-112-00	≥062.03.209	45	26
062-00-113-00	≥062.03.209 ≤062.03.249	44	16
062-00-113-01	≥062.03.250	44	16
062-00-113-10	≥062.03.209	44	17
062-00-114-00	≥062.03.209	44	4
062-00-114-01	≥062.03.209	44	5
062-00-115-00	≥062.03.209	43	7
062-00-116-00	≥062.03.209	41	5
062-00-116-01	≥062.03.209	41	6
062-00-116-02	≥062.03.209	41	7
062-00-116-03	≥062.03.209	41	8
062-00-117-07	==	46	2
062-00-117-08	==	46	2
062-00-117-09	==	46	2
062-00-119-00	≥062.03.209	45	18
062-00-120-00	==	46	3
062-00-120-00	==	47	6
062-00-121-00	==	47	5
062-00-122-00	≥062.03.209	43	3

SHIPLEY
A ROHM AND HAAS COMPANY

NUMERICAL INDEX

TAB. N.I. 002
Ed. 2
1600-SPC

PART NUMBER	SERIAL NUMBER	TAB.	POS.
062-01-001-01	==	10	14
062-01-002-00	==	10	15
062-01-002-00	==	11	42
062-01-002-00	==	26	27
062-01-002-00	==	27	43
062-01-002-00	==	29	41
062-01-002-00	==	30	26
062-01-003-00	==	10	19
062-01-003-00	==	11	43
062-01-003-00	==	12	20
062-01-003-00	==	13	63
062-01-003-00	==	29	42
062-01-003-00	==	30	27
062-01-003-00	==	37	11
062-01-003-00	==	38	4
062-01-003-02	==	36	21
062-01-004-00	==	11	41
062-01-005-00	==	12	15
062-01-006-00	==	13	25
062-01-006-01	==	13	26
062-01-007-00	==	13	62
062-01-008-01	==	26	23
062-01-008-02	==	10	42
062-01-008-02	==	26	25
062-01-008-03	==	10	43
062-01-008-03	==	26	26
062-01-008-04	==	10	46
062-01-008-04	==	26	34
062-01-009-00	==	26	28
062-01-010-00	==	27	13
062-01-011-00	==	27	17
062-01-012-00	==	27	42
062-01-013-00	==	29	11
062-01-013-00	==	30	1
062-01-014-00	==	38	18
062-01-015-00	==	32	1
062-01-015-01	==	32	2
062-01-016-00	==	4	57
062-01-016-00	==	15	7
062-01-016-00	==	37	1
062-01-016-00	==	38	19
062-01-017-00	==	37	2
062-01-019-00	==	37	3
062-01-020-00	==	37	4
062-01-021-00	==	15	19
062-01-021-00	==	37	5
062-01-022-00	==	15	20
062-01-022-00	==	37	6
062-01-022-01	==	15	24
062-01-022-01	==	37	10
062-01-022-02	==	15	23
062-01-022-02	==	37	7
062-01-022-03	==	15	21
062-01-022-03	==	37	8
062-01-022-04	==	15	22
062-01-022-04	==	37	9
062-01-023-00	==	37	12
062-01-023-01	==	37	13
062-01-023-02	==	37	14
062-01-025-00	==	38	13
062-01-026-00	==	38	3
062-01-027-00	==	37	18
062-01-028-00	==	37	19
062-01-029-00	==	37	20
062-01-030-00	==	15	26
062-01-030-00	==	37	21
062-01-030-01	==	15	27
062-01-030-01	==	37	22
062-01-030-02	==	15	28
062-01-030-02	==	37	23
062-01-031-00	==	37	24
062-01-032-00	==	15	25
062-01-032-00	==	37	28
062-01-032-00	==	38	7
062-01-033-00	==	4	56
062-01-033-00	==	37	29
062-01-033-00	==	38	17
062-01-034-00	==	37	30
062-01-034-00	==	38	6
062-01-035-00	==	37	32
062-01-036-00	==	37	34
062-01-037-00	==	38	1
062-01-038-00	==	38	2
062-01-039-00	==	38	10
062-01-040-01	==	38	5
062-01-041-00	==	38	9
062-01-042-00	==	38	14
062-01-043-00	==	38	15
062-01-044-00	==	37	15
062-01-044-00	==	38	16
062-01-045-00	==	38	20
062-01-046-00	==	38	24
062-01-047-00	==	38	25
062-01-048-00	==	38	26
062-01-049-00	==	38	27
062-01-051-00	==	26	29
062-01-053-00	==	11	44
062-01-054-00	==	11	46
062-01-055-00	==	13	27
062-01-056-00	==	13	28
062-01-058-00	==	32	3
062-01-059-00	==	32	4
062-01-060-00	==	32	5
062-01-061-00	==	12	31
062-01-062-00	==	30	28
062-01-064-00	==	36	14
062-01-065-00	==	36	15
062-01-066-00	==	36	18
062-01-066-01	==	36	19
062-01-066-02	==	36	20
062-01-067-00	==	29	13
062-01-067-00	==	30	2
062-01-067-00	==	38	33
062-01-069-00	==	35	46
062-01-076-00	==	12	18
062-01-080-00	==	2	55
062-01-086-00	==	38	29
062-01-087-00	==	38	32
062-01-089-00	==	38	34
062-01-090-00	==	38	35

PART NUMBER	SERIAL NUMBER	TAB.	POS.

SHIPLEY
A ROHM AND HAAS COMPANY

NUMERICAL INDEX

TAB. N.I. 003
Ed. 2
1600-SPC

PART NUMBER	SERIAL NUMBER	TAB.	POS.
062-02-001-00	==	13	43
062-02-002-00	==	6	5
062-02-002-00	==	13	23
062-02-003-00	==	13	14
062-02-004-00	==	13	38
062-02-004-00	==	15	16
062-02-005-00	==	13	32
062-02-006-00	==	13	17
062-02-007-00	==	13	4
062-02-008-00	==	11	8
062-02-008-00	==	13	16
062-02-008-00	==	21	16
062-02-008-00	==	24	30
062-02-009-00	==	2	40
062-02-011-00	==	2	4
062-02-011-00	==	31	22
062-02-012-00	==	2	17
062-02-012-00	==	29	39
062-02-014-00	==	6	28
062-02-014-00	==	7	47
062-02-014-00	==	12	7
062-02-014-00	==	26	13
062-02-014-00	==	34	28
062-02-015-00	==	10	35
062-02-016-00	==	10	6
062-02-016-00	==	34	22
062-02-017-00	==	10	31
062-02-018-00	==	6	9
062-02-018-00	==	7	28
062-02-018-00	==	10	1
062-02-018-00	==	29	3
062-02-018-00	==	31	40
062-02-018-00	==	34	3
062-02-019-00	==	12	9
062-02-020-00	==	10	12
062-02-024-00	==	21	11
062-02-024-00	==	24	11
062-02-026-00	==	11	13
062-02-026-00	==	21	17
062-02-026-00	==	24	32
062-02-028-00	==	20	11
062-02-028-00	==	23	25
062-02-029-00	==	20	10
062-02-029-00	==	23	24
062-02-030-00	==	20	6
062-02-030-00	==	23	8
062-02-030-00	==	29	53
062-02-031-00	==	20	25
062-02-031-00	==	23	28
062-02-033-00	==	27	21
062-02-033-00	==	28	7
062-02-035-00	==	27	26
062-02-035-00	==	28	2
062-02-036-00	==	27	7
062-02-041-00	==	8	21
062-02-042-00	==	9	20
062-02-043-00	==	8	34
062-02-044-00	==	7	4
062-02-044-00	==	9	14
062-02-045-00	==	9	5
062-02-046-00	==	9	1
062-02-047-00	==	29	32
062-02-048-00	==	20	14
062-02-048-00	==	23	18
062-02-048-00	==	29	17
062-02-049-00	==	29	19
062-02-052-00	==	10	44
062-02-052-00	==	19	15
062-02-053-00	==	19	21
062-02-054-00	==	19	6
062-02-055-00	==	19	23
062-02-055-00	==	31	15
062-02-056-00	==	19	19
062-02-058-00	==	18	12
062-02-062-00	==	1	24
062-02-062-00	==	10	17
062-02-062-00	==	26	20
062-02-062-00	==	27	5
062-02-062-00	==	28	12
062-02-064-00	==	6	27
062-02-064-00	==	7	46
062-02-064-00	==	34	27
062-02-066-00	==	7	29
062-02-066-00	==	10	41
062-02-066-00	==	31	6
062-02-067-00	==	10	5
062-02-067-00	==	12	5
062-02-067-00	==	19	5
062-02-067-00	==	29	49
062-02-067-00	==	34	21
062-02-069-00	==	10	39
062-02-070-00	==	21	5
062-02-070-00	==	24	6
062-02-071-00	==	21	10
062-02-071-00	==	24	10
062-02-072-00	==	19	18
062-02-072-00	==	21	9
062-02-072-00	==	24	9
062-02-075-00	==	20	7
062-02-075-00	==	23	7
062-02-075-00	==	29	54
062-02-077-00	==	20	26
062-02-077-00	==	23	29
062-02-079-00	==	8	33
062-02-080-00	==	29	30
062-02-081-00	==	13	11
062-02-081-00	==	15	14
062-02-081-00	==	20	5
062-02-081-00	==	23	31
062-02-081-00	==	29	33
062-02-081-00	==	30	23
062-02-082-00	==	20	12
062-02-082-00	==	23	26
062-02-082-00	==	29	14
062-02-085-00	==	7	34
062-02-085-00	==	19	24
062-02-086-00	==	18	11
062-02-089-00	==	31	36
062-02-091-00	==	31	8
062-02-094-00	==	31	33
062-02-095-00	==	31	10
062-02-096-00	==	31	37
062-02-097-00	==	31	16
062-02-097-00	==	33	23
062-02-099-00	==	30	22
062-02-100-01	==	30	14
062-02-101-00	==	32	18
062-02-102-00	==	29	48
062-02-102-00	==	32	33
062-02-103-00	==	32	28
062-02-104-00	==	6	1
062-02-105-00	==	24	45
062-02-106-00	==	21	21
062-02-107-00	==	34	20
062-02-108-00	==	34	1
062-02-111-00	==	1	2
062-02-112-00	==	1	3
062-02-113-00	==	1	4
062-02-114-00	==	1	5
062-02-114-00	==	34	23
062-02-115-00	==	1	6
062-02-115-00	==	20	2
062-02-115-00	==	23	4
062-02-115-00	==	26	2
062-02-115-00	==	31	24
062-02-115-00	==	31	52
062-02-116-00	==	2	65
062-02-116-00	==	4	58
062-02-116-00	==	6	10
062-02-116-00	==	7	14
062-02-116-00	==	14	9
062-02-116-00	==	17	19
062-02-116-00	==	19	31
062-02-116-00	==	20	44
062-02-116-00	==	23	33
062-02-116-00	==	27	31
062-02-116-00	==	28	42
062-02-116-00	==	31	43
062-02-116-00	==	32	8
062-02-116-00	==	34	9
062-02-116-00	==	37	35
062-02-116-00	==	38	22
062-02-116-00	==	40	6
062-02-116-00	==	35	33
062-02-117-00	==	1	8
062-02-118-00	==	1	9
062-02-119-00	==	1	10
062-02-120-00	==	1	11
062-02-121-00	==	1	12
062-02-121-00	==	2	29
062-02-121-00	==	10	18
062-02-121-00	==	10	28
062-02-121-00	==	12	6
062-02-121-00	==	13	8
062-02-121-00	==	15	10
062-02-121-00	==	18	6
062-02-121-00	==	38	12
062-02-121-00	==	39	2
062-02-122-00	==	1	13
062-02-123-00	==	1	14

PART NUMBER	SERIAL NUMBER	TAB.	POS.
062-02-124-00	==	1	15
062-02-127-00	==	1	19
062-02-128-00	==	1	17
062-02-129-00	==	1	18
062-02-130-00	==	2	1
062-02-131-00	==	2	2
062-02-132-00	==	2	3
062-02-133-00	==	2	5
062-02-134-00	==	2	6
062-02-134-00	==	12	1
062-02-135-00	==	2	7
062-02-135-00	==	29	38
062-02-135-00	==	30	32
062-02-135-00	==	32	13
062-02-136-00	==	2	8
062-02-136-00	==	18	4
062-02-136-00	==	19	3
062-02-136-00	==	32	11
062-02-137-00	==	2	9
062-02-138-00	==	2	11
062-02-139-00	==	2	12
062-02-140-00	==	2	13
062-02-141-00	==	2	14
062-02-142-00	==	2	15
062-02-143-00	==	2	16
062-02-144-00	==	20	34
062-02-145-00	==	2	18
062-02-146-00	==	2	19
062-02-147-00	==	2	20
062-02-148-00	==	2	21
062-02-149-00	==	2	22
062-02-150-00	==	2	23
062-02-151-00	==	2	24
062-02-152-00	==	2	25
062-02-153-00	==	2	26
062-02-154-00	==	2	27
062-02-155-00	==	2	28
062-02-155-00	==	7	17
062-02-155-00	==	13	7
062-02-156-00	==	2	30
062-02-157-00	==	2	31
062-02-158-00	==	2	32
062-02-159-00	==	2	33
062-02-160-00	==	2	34
062-02-161-00	==	2	35
062-02-162-00	==	2	36
062-02-163-00	==	2	37
062-02-163-00	==	38	21
062-02-164-00	==	2	38
062-02-164-00	==	13	22
062-02-165-00	==	2	39
062-02-166-00	==	2	41
062-02-167-00	==	2	42
062-02-168-00	==	2	43
062-02-169-00	==	2	44
062-02-169-00	==	18	3
062-02-170-00	==	2	45
062-02-171-00	==	2	46
062-02-172-00	==	2	47
062-02-172-00	==	5	5
062-02-172-00	==	13	45
062-02-172-00	==	32	27
062-02-172-00	==	35	40
062-02-173-00	==	2	48
062-02-174-00	==	2	49
062-02-175-00	==	4	41
062-02-175-00	==	6	29
062-02-175-00	==	8	31
062-02-175-00	==	10	2
062-02-175-00	==	11	1
062-02-175-00	==	22	1
062-02-175-00	==	25	12
062-02-175-00	==	27	34
062-02-175-00	==	28	24
062-02-175-00	==	33	21
062-02-175-00	==	34	29
062-02-175-00	==	36	7
062-02-176-00	==	2	51
062-02-176-00	==	4	24
062-02-176-00	==	4	28
062-02-176-00	==	4	50
062-02-176-00	==	6	22
062-02-176-00	==	12	44
062-02-176-00	==	19	27
062-02-176-00	==	22	23
062-02-176-00	==	25	23
062-02-176-00	==	27	41
062-02-176-00	==	28	28
062-02-176-00	==	32	17
062-02-176-00	==	33	43
062-02-176-00	==	34	17
062-02-176-00	==	36	23
062-02-176-00	==	35	26
062-02-177-00	==	2	52
062-02-177-00	==	3	27
062-02-177-00	==	4	62
062-02-177-00	==	10	29
062-02-177-00	==	12	43
062-02-177-00	==	20	50
062-02-177-00	==	27	8
062-02-177-00	==	30	39
062-02-178-00	==	2	53
062-02-179-00	==	2	10
062-02-180-00	==	6	2
062-02-183-00	==	7	3
062-02-183-00	==	11	11
062-02-183-00	==	12	36
062-02-183-00	==	30	21
062-02-184-00	==	6	6
062-02-184-00	==	8	13
062-02-184-00	==	21	48
062-02-184-00	==	24	31
062-02-184-00	==	29	22
062-02-184-00	==	34	18
062-02-184-00	==	39	5
062-02-184-00	==	35	39
062-02-185-00	==	6	7
062-02-185-00	==	16	23
062-02-186-00	==	5	10
062-02-186-00	==	6	8
062-02-186-00	==	16	3
062-02-186-00	==	16	15
062-02-186-00	==	22	41
062-02-186-00	==	25	38
062-02-186-00	==	33	38
062-02-186-00	==	34	6
062-02-187-00	==	6	11
062-02-187-00	==	28	35
062-02-187-00	==	34	4
062-02-188-00	==	6	12
062-02-188-00	==	12	29
062-02-189-00	==	6	13
062-02-189-00	==	34	10
062-02-190-00	==	5	39
062-02-190-00	==	6	14
062-02-190-00	==	7	37
062-02-190-00	==	21	1
062-02-190-00	==	24	1
062-02-190-00	==	29	56
062-02-190-00	==	31	35
062-02-190-00	==	33	11
062-02-190-00	==	34	11
062-02-192-00	==	6	16
062-02-192-00	==	34	15
062-02-193-00	==	34	14
062-02-193-01	==	6	17
062-02-195-00	==	6	19
062-02-196-01	==	6	20
062-02-197-00	==	6	21
062-02-197-00	==	34	16
062-02-197-00	==	35	29
062-02-198-00	==	6	23
062-02-198-00	==	9	24
062-02-198-00	==	32	35
062-02-198-00	==	34	8
062-02-199-00	==	6	24
062-02-199-00	==	34	24
062-02-200-00	==	21	32
062-02-200-00	==	24	20
062-02-202-00	==	6	25
062-02-202-00	==	34	25
062-02-203-00	==	6	26
062-02-203-00	==	34	26
062-02-204-00	==	13	15
062-02-204-00	==	33	33
062-02-205-00	==	6	30
062-02-206-00	==	2	57
062-02-206-00	==	6	31
062-02-206-00	==	9	8
062-02-206-00	==	20	37
062-02-206-00	==	31	45
062-02-207-01	==	6	18
062-02-209-01	==	8	5
062-02-210-00	==	8	6
062-02-211-00	==	8	7
062-02-212-00	==	8	8
062-02-213-00	==	8	9
062-02-213-00	==	27	40
062-02-213-00	==	28	27
062-02-213-00	==	29	44

SHIPLEY
A ROHM AND HAAS COMPANY

NUMERICAL INDEX

TAB. N.I. 005
Ed. 2
1600-SPC

PART NUMBER	SERIAL NUMBER	TAB.	POS.
062-02-213-00	==	35	25
062-02-214-00	==	8	10
062-02-215-00	==	8	11
062-02-216-00	==	8	12
062-02-217-00	==	7	45
062-02-217-00	==	8	14
062-02-217-00	==	9	19
062-02-217-00	==	12	25
062-02-217-00	==	17	4
062-02-217-00	==	23	1
062-02-217-00	==	28	26
062-02-217-00	==	30	16
062-02-217-00	==	32	38
062-02-217-00	==	36	4
062-02-217-00	==	37	31
062-02-217-00	==	38	8
062-02-217-00	==	39	24
062-02-218-00	==	8	16
062-02-219-01	==	8	19
062-02-220-00	==	20	36
062-02-220-00	==	23	2
062-02-221-00	==	8	24
062-02-222-00	==	8	25
062-02-223-00	==	8	26
062-02-223-00	==	33	36
062-02-224-00	==	8	27
062-02-225-00	==	8	28
062-02-225-00	==	22	19
062-02-225-00	==	34	44
062-02-226-00	==	8	32
062-02-227-00	==	17	21
062-02-228-00	==	8	35
062-02-229-00	==	8	36
062-02-229-00	==	29	25
062-02-230-00	==	8	37
062-02-231-00	==	8	38
062-02-232-00	==	8	39
062-02-232-00	==	13	34
062-02-232-00	==	13	51
062-02-232-00	==	30	19
062-02-233-00	==	4	30
062-02-233-00	==	8	40
062-02-233-00	==	10	22
062-02-233-00	==	25	16
062-02-233-00	==	35	38
062-02-234-00	==	9	2
062-02-235-01	==	9	3
062-02-237-00	==	9	6
062-02-238-00	==	9	7
062-02-239-00	==	9	9
062-02-240-00	==	9	10
062-02-241-00	==	8	3
062-02-241-00	==	9	11
062-02-241-00	==	12	27
062-02-241-00	==	17	8
062-02-241-00	==	22	39
062-02-241-00	==	25	36
062-02-241-00	==	34	48
062-02-241-00	==	36	13
062-02-242-00	==	9	12
062-02-242-00	==	26	7
062-02-242-00	==	32	39
062-02-242-00	==	33	3
062-02-243-00	==	9	15
062-02-244-00	==	9	16
062-02-244-00	==	9	34
062-02-245-00	==	3	18
062-02-245-00	==	9	17
062-02-245-00	==	22	2
062-02-245-00	==	27	24
062-02-245-00	==	28	5
062-02-246-00	==	3	26
062-02-246-00	==	7	42
062-02-246-00	==	9	18
062-02-246-00	==	17	12
062-02-246-00	==	21	25
062-02-246-00	==	26	8
062-02-246-00	==	27	30
062-02-246-00	==	28	41
062-02-246-00	==	32	22
062-02-246-00	==	37	36
062-02-246-00	==	38	23
062-02-246-00	==	40	9
062-02-246-00	==	35	34
062-02-247-01	==	9	21
062-02-248-00	==	9	22
062-02-248-00	==	37	26
062-02-249-00	==	9	23
062-02-250-00	==	2	54
062-02-250-00	==	7	41
062-02-250-00	==	9	25
062-02-250-00	==	11	49
062-02-250-00	==	12	3
062-02-250-00	==	18	15
062-02-250-00	==	26	6
062-02-250-00	==	30	5
062-02-251-00	==	9	26
062-02-251-00	==	11	45
062-02-251-00	==	12	23
062-02-251-00	==	21	14
062-02-251-00	==	24	34
062-02-251-00	==	29	9
062-02-252-00	==	9	28
062-02-253-00	==	9	29
062-02-254-00	==	8	15
062-02-254-00	==	9	30
062-02-254-00	==	11	51
062-02-254-00	==	21	43
062-02-254-00	==	24	39
062-02-255-00	==	9	32
062-02-255-00	==	25	9
062-02-256-00	==	9	33
062-02-257-00	==	7	32
062-02-258-00	==	10	3
062-02-259-00	==	10	4
062-02-260-01	==	17	5
062-02-261-01	==	10	7
062-02-262-00	==	10	8
062-02-263-00	==	10	9
062-02-264-00	==	10	10
062-02-265-00	==	10	11
062-02-265-00	==	13	31
062-02-265-00	==	17	2
062-02-265-00	==	22	4
062-02-265-00	==	25	10
062-02-265-00	==	29	52
062-02-266-00	==	20	39
062-02-267-00	==	10	13
062-02-267-00	==	26	24
062-02-268-00	==	17	3
062-02-269-00	==	10	20
062-02-270-00	==	10	21
062-02-271-00	==	10	23
062-02-272-00	==	7	23
062-02-272-00	==	10	24
062-02-273-00	==	10	25
062-02-274-00	==	10	26
062-02-275-00	==	10	27
062-02-276-00	==	10	30
062-02-277-00	==	10	33
062-02-278-00	==	7	25
062-02-278-00	==	10	34
062-02-279-00	==	10	36
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062-02-281-00	==	10	38
062-02-282-00	==	17	9
062-02-283-00	==	10	40
062-02-284-00	==	11	2
062-02-285-00	==	23	27
062-02-286-00	==	4	32
062-02-286-00	==	10	16
062-02-286-00	==	26	30
062-02-287-00	==	3	21
062-02-287-00	==	11	3
062-02-287-00	==	22	20
062-02-287-00	==	25	2
062-02-287-00	==	28	30
062-02-288-00	==	11	4
062-02-289-00	==	11	5
062-02-290-00	==	11	6
062-02-291-00	==	11	7
062-02-292-00	==	11	9
062-02-293-00	==	11	10
062-02-294-00	==	11	14
062-02-295-00	==	11	15
062-02-296-00	==	11	16
062-02-297-00	==	11	17
062-02-298-00	==	11	19
062-02-299-00	==	11	20
062-02-299-00	==	16	2
062-02-300-00	==	11	21
062-02-301-00	==	4	38
062-02-301-00	==	6	4
062-02-301-00	==	11	22
062-02-301-00	==	12	19
062-02-302-00	==	11	23
062-02-303-00	==	11	24
062-02-304-00	==	11	25
062-02-305-00	==	11	26
062-02-306-00	==	11	27

PART NUMBER	SERIAL NUMBER	TAB.	POS.
062-02-307-00	==	11	28
062-02-308-00	==	11	29
062-02-309-00	==	11	30
062-02-310-00	==	11	31
062-02-311-00	==	11	33
062-02-311-00	==	12	26
062-02-312-00	==	11	34
062-02-313-00	==	3	12
062-02-313-00	==	11	35
062-02-313-00	==	22	30
062-02-313-00	==	25	27
062-02-314-00	==	11	36
062-02-315-00	==	11	37
062-02-316-00	==	11	38
062-02-317-00	==	11	39
062-02-317-00	==	12	21
062-02-318-00	==	11	47
062-02-319-00	==	11	48
062-02-320-00	==	11	50
062-02-321-00	==	38	31
062-02-322-00	==	12	2
062-02-323-00	==	12	4
062-02-325-00	==	12	8
062-02-326-00	==	12	10
062-02-327-00	==	3	25
062-02-327-00	==	4	5
062-02-327-00	==	12	11
062-02-327-00	==	13	29
062-02-327-00	==	17	18
062-02-328-00	==	12	12
062-02-329-00	==	12	13
062-02-330-00	==	12	14
062-02-331-00	==	12	16
062-02-332-00	==	12	17
062-02-333-00	==	12	24
062-02-334-00	==	12	30
062-02-335-00	==	12	32
062-02-336-00	==	12	33
062-02-337-00	==	12	34
062-02-338-00	==	8	2
062-02-338-00	==	12	22
062-02-338-00	==	14	6
062-02-338-00	==	16	21
062-02-338-00	==	27	47
062-02-338-00	==	33	28
062-02-338-00	==	39	11
062-02-339-00	==	13	1
062-02-340-00	==	13	2
062-02-341-00	==	13	3
062-02-342-00	==	23	30
062-02-343-00	==	13	5
062-02-344-00	==	13	6
062-02-345-00	==	13	9
062-02-346-00	==	13	10
062-02-347-00	==	17	6
062-02-348-00	==	13	12
062-02-349-00	==	13	13
062-02-350-00	==	17	7
062-02-351-00	==	23	32
062-02-352-00	==	13	18
062-02-353-00	==	13	19
062-02-354-00	==	13	20
062-02-354-00	==	29	46
062-02-354-00	==	39	3
062-02-355-00	==	13	21
062-02-356-00	==	20	40
062-02-357-00	==	13	24
062-02-357-00	==	31	30
062-02-358-00	==	13	30
062-02-360-00	==	13	33
062-02-361-00	==	13	35
062-02-362-00	==	13	36
062-02-363-00	==	13	37
062-02-364-00	==	20	41
062-02-365-00	==	13	39
062-02-366-00	==	13	40
062-02-367-00	==	13	41
062-02-368-00	==	13	42
062-02-369-00	==	20	43
062-02-370-00	==	13	44
062-02-371-00	==	13	46
062-02-372-00	==	13	48
062-02-373-00	==	13	49
062-02-374-00	==	13	50
062-02-375-00	==	13	53
062-02-376-00	==	13	54
062-02-377-00	==	13	55
062-02-378-00	==	13	56
062-02-379-00	==	13	57
062-02-379-00	==	14	5
062-02-380-00	==	13	58
062-02-381-00	==	13	59
062-02-382-00	==	13	60
062-02-383-00	==	13	61
062-02-384-00	==	14	10
062-02-384-00	==	20	45
062-02-384-00	==	31	42
062-02-384-00	==	40	8
062-02-385-00	==	16	1
062-02-386-00	==	16	4
062-02-388-00	==	16	9
062-02-399-00	==	27	11
062-02-402-00	==	18	19
062-02-402-00	==	21	24
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062-02-404-00	==	17	11
062-02-407-00	==	13	52
062-02-407-00	==	16	6
062-02-407-00	==	18	5
062-02-407-00	==	21	29
062-02-407-00	==	24	17
062-02-407-00	==	38	11
062-02-411-00	==	18	9
062-02-412-00	==	18	10
062-02-413-00	==	18	13
062-02-415-00	==	18	17
062-02-415-00	==	20	42
062-02-415-00	==	22	25
062-02-415-00	==	25	25
062-02-415-00	==	31	2
062-02-417-00	==	18	20
062-02-418-10	==	18	21
062-02-418-11	==	18	22
062-02-418-12	==	18	23
062-02-419-00	==	19	1
062-02-420-00	==	19	2
062-02-421-00	==	19	4
062-02-422-00	==	19	7
062-02-423-00	==	19	8
062-02-424-00	==	19	9
062-02-425-00	==	19	10
062-02-426-00	==	19	11
062-02-427-00	==	19	12
062-02-428-00	==	19	13
062-02-429-00	==	19	14
062-02-430-00	==	19	16
062-02-431-00	==	19	17
062-02-432-00	==	19	20
062-02-433-00	==	19	22
062-02-434-00	==	19	25
062-02-435-00	==	4	49
062-02-435-00	==	19	26
062-02-435-00	==	33	42
062-02-436-00	==	19	28
062-02-437-01	==	20	1
062-02-437-01	==	21	3
062-02-437-01	==	24	3
062-02-438-00	==	20	3
062-02-438-00	==	23	5
062-02-439-00	==	20	4
062-02-440-00	==	20	8
062-02-441-00	==	20	9
062-02-441-00	==	23	3
062-02-442-00	==	20	13
062-02-442-00	==	23	17
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062-02-443-00	==	20	15
062-02-443-00	==	23	19
062-02-444-00	==	20	16
062-02-444-00	==	23	21
062-02-445-00	==	7	49
062-02-445-00	==	20	17
062-02-445-00	==	23	20
062-02-446-00	==	20	18
062-02-447-00	==	20	19
062-02-447-00	==	23	22
062-02-448-00	==	20	20
062-02-450-00	==	20	22
062-02-451-00	==	20	23
062-02-452-00	==	20	27
062-02-452-00	==	21	40
062-02-452-00	==	26	9
062-02-452-00	==	27	36
062-02-452-00	==	28	23
062-02-453-00	==	20	28
062-02-453-00	==	23	13
062-02-453-00	==	27	38
062-02-453-00	==	28	16
062-02-453-00	==	30	13
062-02-454-00	==	20	30

SHIPLEY
A ROHM AND HAAS COMPANY

NUMERICAL INDEX

TAB. N.I. 007
Ed. 2
1600-SPC

PART NUMBER	SERIAL NUMBER	TAB.	POS.
062-02-454-00	==	23	11
062-02-455-00	==	20	31
062-02-455-00	==	23	9
062-02-456-00	==	20	32
062-02-457-00	==	20	33
062-02-458-00	==	23	6
062-02-459-00	==	23	10
062-02-460-00	==	23	14
062-02-461-00	==	23	15
062-02-462-00	==	23	16
062-02-462-00	==	31	48
062-02-463-00	==	23	23
062-02-464-00	==	21	2
062-02-464-00	==	24	2
062-02-464-00	==	31	1
062-02-465-01	==	21	4
062-02-466-00	==	21	6
062-02-466-00	==	24	5
062-02-467-00	==	21	7
062-02-467-00	==	24	7
062-02-468-00	==	21	8
062-02-468-00	==	24	8
062-02-469-01	==	21	12
062-02-469-01	==	24	33
062-02-470-00	==	21	13
062-02-470-00	==	24	26
062-02-471-00	==	21	15
062-02-473-00	==	21	26
062-02-474-00	==	21	27
062-02-474-00	==	24	22
062-02-475-00	==	21	28
062-02-475-00	==	24	16
062-02-476-00	==	21	30
062-02-476-00	==	24	18
062-02-477-00	==	21	31
062-02-478-00	==	21	33
062-02-479-00	==	21	34
062-02-479-00	==	24	12
062-02-480-00	==	21	35
062-02-481-00	==	21	36
062-02-481-00	==	24	23
062-02-482-00	==	21	37
062-02-482-00	==	24	24
062-02-483-00	==	21	38
062-02-484-00	==	21	39
062-02-485-00	==	21	41
062-02-485-00	==	24	36
062-02-486-00	==	21	42
062-02-486-00	==	24	37
062-02-487-00	==	21	45
062-02-487-00	==	24	38
062-02-488-00	==	21	46
062-02-488-02	==	24	41
062-02-489-00	==	21	47
062-02-489-00	==	24	42
062-02-490-00	==	21	49
062-02-490-00	==	24	13
062-02-491-00	==	21	50
062-02-492-00	==	21	51
062-02-492-00	==	24	44
062-02-492-00	==	28	37
062-02-492-00	==	33	45
062-02-493-00	==	21	22
062-02-493-00	==	24	46
062-02-494-00	==	24	14
062-02-495-00	==	24	15
062-02-496-00	==	24	19
062-02-497-00	==	24	21
062-02-498-00	==	24	25
062-02-499-00	==	24	27
062-02-500-00	==	24	28
062-02-502-00	==	24	35
062-02-503-00	==	24	43
062-02-504-00	==	22	3
062-02-505-00	==	22	5
062-02-506-00	==	22	6
062-02-507-00	==	22	7
062-02-509-00	==	22	9
062-02-510-00	==	22	10
062-02-510-00	==	25	19
062-02-511-00	==	22	11
062-02-512-00	==	22	12
062-02-512-00	==	25	21
062-02-513-00	==	22	13
062-02-513-00	==	25	15
062-02-514-00	==	4	51
062-02-514-00	==	14	3
062-02-514-00	==	22	15
062-02-514-00	==	25	6
062-02-515-00	==	22	16
062-02-515-00	==	25	5
062-02-516-00	==	30	8
062-02-517-00	==	22	21
062-02-517-00	==	25	1
062-02-518-00	==	22	22
062-02-518-00	==	25	3
062-02-519-00	==	22	24
062-02-519-00	==	25	24
062-02-520-00	==	22	26
062-02-520-00	==	25	26
062-02-521-00	==	22	27
062-02-522-00	==	22	28
062-02-522-00	==	25	20
062-02-523-00	==	22	29
062-02-523-00	==	25	17
062-02-524-00	==	25	11
062-02-525-00	==	25	14
062-02-526-00	==	25	18
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062-02-528-00	==	26	1
062-02-529-01	==	26	3
062-02-530-01	==	26	4
062-02-531-00	==	26	5
062-02-532-00	==	26	10
062-02-533-00	==	26	11
062-02-534-00	==	12	37
062-02-534-00	==	26	12
062-02-535-00	==	26	14
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062-02-537-00	==	29	2
062-02-537-00	==	33	30
062-02-538-00	==	26	17
062-02-539-00	==	26	21
062-02-540-00	==	26	22
062-02-541-00	==	4	44
062-02-541-00	==	32	32
062-02-542-00	==	26	19
062-02-543-00	==	27	1
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062-02-546-00	==	27	4
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062-02-551-00	==	27	15
062-02-553-00	==	27	18
062-02-554-00	==	27	19
062-02-555-00	==	27	20
062-02-555-00	==	28	8
062-02-556-00	==	27	22
062-02-556-00	==	28	3
062-02-557-00	==	27	23
062-02-557-00	==	28	4
062-02-558-00	==	27	25
062-02-558-00	==	28	1
062-02-559-00	==	27	27
062-02-559-00	==	28	43
062-02-560-00	==	27	28
062-02-560-00	==	28	9
062-02-561-00	==	27	29
062-02-561-00	==	28	10
062-02-562-00	==	27	32
062-02-563-00	==	27	33
062-02-564-00	==	27	35
062-02-565-00	==	27	37
062-02-565-00	==	28	25
062-02-566-00	==	3	13
062-02-566-00	==	4	15
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062-02-579-00	==	28	29
062-02-580-00	==	28	31
062-02-582-00	==	28	33
062-02-583-00	==	28	34
062-02-584-00	==	28	36

SHIPLEY
A ROHM AND HAAS COMPANY

NUMERICAL INDEX

TAB. N.I. 008
Ed. 2
1600-SPC

PART NUMBER	SERIAL NUMBER	TAB.	POS.
062-02-585-01	==	28	38
062-02-587-00	==	28	40
062-02-588-00	==	29	1
062-02-589-00	==	29	4
062-02-590-00	==	29	5
062-02-591-00	==	29	6
062-02-592-00	==	29	8
062-02-593-00	==	29	10
062-02-594-00	==	29	12
062-02-595-00	==	29	16
062-02-596-00	==	29	18
062-02-597-00	==	29	20
062-02-598-00	==	29	21
062-02-599-00	==	29	23
062-02-600-00	==	29	24
062-02-601-00	==	29	26
062-02-602-00	==	29	27
062-02-603-00	==	29	28
062-02-604-00	==	29	29
062-02-605-00	==	29	31
062-02-606-00	==	29	34
062-02-607-00	==	29	35
062-02-608-00	==	29	36
062-02-609-00	==	29	37
062-02-610-00	==	29	40
062-02-611-00	==	30	3
062-02-611-00	==	36	16
062-02-612-00	==	30	4
062-02-613-00	==	30	6
062-02-614-00	==	30	7
062-02-616-00	==	30	9
062-02-617-00	==	30	10
062-02-618-00	==	30	11
062-02-618-00	==	34	43
062-02-619-01	==	30	12
062-02-620-01	==	30	15
062-02-621-00	==	30	17
062-02-622-01	==	30	18
062-02-623-00	==	30	20
062-02-624-00	==	30	21
062-02-625-01	==	30	24
062-02-626-01	==	30	25
062-02-627-00	==	31	3
062-02-628-00	==	10	47
062-02-628-00	==	14	12
062-02-628-00	==	31	5
062-02-629-00	==	31	7
062-02-630-00	==	31	9
062-02-631-00	==	31	11
062-02-632-00	==	31	12
062-02-633-00	==	31	13
062-02-634-00	==	31	14
062-02-635-00	==	31	17
062-02-636-00	==	31	18
062-02-637-00	==	3	10
062-02-637-00	==	31	20
062-02-637-00	==	39	7
062-02-638-00	==	31	21
062-02-639-00	==	31	23
062-02-640-00	==	31	25
062-02-641-00	==	31	26
062-02-642-00	==	31	27
062-02-643-00	==	31	28
062-02-644-00	==	31	29
062-02-645-00	==	31	31
062-02-646-00	==	31	32
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062-02-650-00	==	31	39
062-02-652-01	==	31	41
062-02-653-00	==	31	46
062-02-654-00	==	31	47
062-02-655-00	==	31	49
062-02-656-00	==	31	50
062-02-657-00	==	32	6
062-02-658-00	==	19	30
062-02-658-00	==	32	7
062-02-658-00	==	35	32
062-02-659-00	==	34	46
062-02-660-00	==	34	45
062-02-661-00	==	34	42
062-02-662-00	==	32	9
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062-02-666-00	==	32	15
062-02-667-00	==	32	16
062-02-668-00	==	32	19
062-02-669-00	==	32	20
062-02-670-00	==	5	8
062-02-670-00	==	5	30
062-02-670-00	==	32	21
062-02-671-00	==	32	23
062-02-672-00	==	32	24
062-02-673-00	==	32	25
062-02-674-00	==	32	26
062-02-675-00	==	32	29
062-02-676-00	==	32	30
062-02-677-00	==	32	31
062-02-678-00	==	32	34
062-02-679-00	==	33	1
062-02-680-00	==	33	4
062-02-681-00	==	33	5
062-02-682-00	==	33	6
062-02-683-00	==	33	7
062-02-684-00	==	33	8
062-02-685-00	==	33	9
062-02-686-00	==	33	10
062-02-687-00	==	33	12
062-02-688-00	==	33	13
062-02-689-00	==	33	14
062-02-690-00	==	26	35
062-02-690-00	==	33	15
062-02-691-00	==	33	16
062-02-692-00	==	33	17
062-02-697-00	==	33	18
062-02-698-00	==	33	19
062-02-699-00	==	34	2
062-02-700-00	==	34	7
062-02-701-00	==	34	5
062-02-702-00	==	34	13
062-02-703-00	==	34	19
062-02-704-00	==	34	30
062-02-705-00	==	34	31
062-02-706-00	==	34	32
062-02-707-00	==	34	33
062-02-708-00	==	34	41
062-02-709-00	==	34	35
062-02-710-00	==	34	36
062-02-711-00	==	34	37
062-02-712-00	==	34	38
062-02-713-00	==	34	39
062-02-714-00	==	34	40
062-02-715-00	==	34	34
062-02-717-00	==	35	2
062-02-717-01	==	35	3
062-02-717-02	==	35	4
062-02-717-03	==	35	5
062-02-717-04	==	35	6
062-02-718-00	==	35	7
062-02-719-00	==	35	8
062-02-721-01	==	35	10
062-02-723-00	==	35	12
062-02-726-00	==	35	15
062-02-727-00	==	35	16
062-02-728-00	==	35	17
062-02-731-00	==	35	20
062-02-732-00	==	35	21
062-02-733-00	==	35	22
062-02-734-00	==	35	23
062-02-735-00	==	35	24
062-02-736-00	==	35	27
062-02-738-00	==	5	25
062-02-738-00	==	20	38
062-02-738-00	==	36	22
062-02-738-00	==	35	31
062-02-739-00	==	35	35
062-02-740-00	==	35	36
062-02-741-00	==	36	24
062-02-743-00	==	2	56
062-02-744-01	==	2	58
062-02-749-00	==	37	25
062-02-750-00	==	37	27
062-02-751-00	==	37	33
062-02-754-00	==	24	4
062-02-755-00	==	34	47
062-02-755-00	==	35	44
062-02-756-00	==	4	1
062-02-757-00	==	3	8
062-02-757-00	==	4	2
062-02-758-00	==	3	7
062-02-758-00	==	4	3
062-02-759-00	==	4	4
062-02-760-00	==	4	6
062-02-761-00	==	4	7
062-02-762-00	==	4	8
062-02-763-00	==	4	9
062-02-764-00	==	4	10
062-02-765-00	==	4	11
062-02-766-00	==	4	12

SHIPLEY
A ROHM AND HAAS COMPANY

NUMERICAL INDEX

TAB. N.I. 009
Ed. 2
1600-SPC

PART NUMBER	SERIAL NUMBER	TAB.	POS.
062-02-767-00	==	4	13
062-02-768-00	==	4	14
062-02-769-00	==	4	16
062-02-770-00	==	4	17
062-02-771-00	==	4	18
062-02-772-00	==	4	19
062-02-773-00	==	4	20
062-02-774-00	==	4	21
062-02-775-00	==	4	22
062-02-776-00	==	4	23
062-02-777-00	==	4	26
062-02-778-00	==	4	27
062-02-778-01	==	4	53
062-02-780-00	==	3	1
062-02-780-01	==	3	2
062-02-781-00	==	3	3
062-02-781-01	==	3	4
062-02-781-02	==	3	5
062-02-782-00	==	3	6
062-02-783-00	==	3	9
062-02-784-00	==	3	11
062-02-785-00	==	3	14
062-02-786-00	==	3	15
062-02-787-00	==	3	16
062-02-788-00	==	36	1
062-02-789-00	==	36	2
062-02-790-00	==	36	6
062-02-791-00	==	36	8
062-02-792-00	==	36	9
062-02-793-00	==	36	10
062-02-794-00	==	36	11
062-02-795-00	==	36	12
062-02-796-00	==	36	25
062-02-797-00	==	36	5
062-02-798-00	==	36	3
062-02-799-00	==	36	17
062-02-800-00	==	38	30
062-02-800-00	==	39	22
062-02-801-00	==	34	49
062-02-802-00	==	33	25
062-02-803-00	==	33	26
062-02-804-00	==	1	16
062-02-805-00	==	1	20
062-02-806-00	==	1	21
062-02-807-00	==	1	22
062-02-808-00	==	1	23
062-02-809-00	==	1	1
062-02-810-00	==	1	7
062-02-811-00	==	1	25
062-02-812-00	==	1	26
062-02-812-00	==	14	16
062-02-813-00	==	1	27
062-02-814-00	==	10	32
062-02-815-00	==	23	12
062-02-816-00	==	31	19
062-02-817-00	==	20	29
062-02-818-00	==	22	14
062-02-818-00	==	25	4
062-02-819-00	==	22	40
062-02-819-00	==	25	37
062-02-820-00	==	22	18
062-02-820-00	==	25	8
062-02-821-00	==	22	38
062-02-821-00	==	25	35
062-02-822-00	==	22	42
062-02-822-00	==	25	39
062-02-823-00	==	8	30
062-02-823-00	==	11	12
062-02-824-00	==	22	34
062-02-824-00	==	25	31
062-02-825-00	==	22	37
062-02-825-00	==	25	34
062-02-826-00	==	22	43
062-02-826-00	==	25	40
062-02-827-00	==	22	36
062-02-827-00	==	25	33
062-02-828-00	==	22	35
062-02-828-00	==	25	32
062-02-829-00	==	22	33
062-02-829-00	==	25	30
062-02-830-00	==	22	32
062-02-830-00	==	25	29
062-02-831-00	==	40	1
062-02-832-00	==	40	2
062-02-833-00	==	40	4
062-02-834-00	==	3	17
062-02-835-00	==	3	20
062-02-836-00	==	3	23
062-02-837-00	==	3	24
062-02-838-00	==	4	29
062-02-839-00	==	4	31
062-02-840-00	==	4	33
062-02-841-00	==	4	34
062-02-842-00	==	4	36
062-02-843-00	==	4	37
062-02-844-00	==	4	39
062-02-845-00	==	4	40
062-02-846-00	==	4	42
062-02-847-00	==	6	3
062-02-848-00	==	7	1
062-02-849-00	==	7	2
062-02-850-00	==	7	30
062-02-850-00	==	33	40
062-02-852-00	==	29	51
062-02-853-00	==	17	17
062-02-854-00	==	17	20
062-02-855-00	==	31	54
062-02-856-00	==	31	51
062-02-857-00	==	29	50
062-02-858-00	==	29	45
062-02-863-00	==	28	39
062-02-864-00	==	28	32
062-02-865-00	==	27	48
062-02-866-00	==	27	49
062-02-868-00	==	20	48
062-02-869-00	==	20	49
062-02-870-00	==	20	47
062-02-874-00	==	30	40
062-02-877-00	==	31	53
062-02-878-00	==	39	4
062-02-880-00	==	30	33
062-02-881-00	==	30	38
062-02-882-00	==	39	1
062-02-883-00	==	31	56
062-02-886-00	==	7	11
062-02-888-00	==	31	38
062-02-889-00	==	33	20
062-02-890-00	==	33	48
062-02-891-00	==	33	46
062-02-892-00	==	33	44
062-02-893-00	==	33	37
062-02-894-00	==	33	34
062-02-895-00	==	33	39
062-02-898-00	==	7	5
062-02-898-00	==	33	50
062-02-899-00	==	7	6
062-02-900-00	==	7	7
062-02-900-00	==	26	18
062-02-901-00	==	7	8
062-02-902-00	==	7	9
062-02-903-00	==	7	10
062-02-904-00	==	7	12
062-02-905-00	==	7	13
062-02-905-00	==	21	19
062-02-905-00	==	24	48
062-02-906-00	==	7	15
062-02-907-00	==	7	16
062-02-908-00	==	7	18
062-02-909-00	==	7	19
062-02-910-00	==	7	20
062-02-911-00	==	7	21
062-02-912-00	==	7	22
062-02-913-00	==	7	24
062-02-915-00	==	7	27
062-02-916-00	==	7	31
062-02-917-00	==	7	33
062-02-918-00	==	7	35
062-02-919-00	==	7	36
062-02-920-00	==	7	38
062-02-921-00	==	8	1
062-02-922-00	==	8	4
062-02-923-00	==	8	20
062-02-924-00	==	8	22
062-02-925-00	==	8	23
062-02-926-00	==	8	41
062-02-927-01	==	9	35
062-02-928-00	==	9	36
062-02-929-00	==	9	37
062-02-930-00	==	9	13
062-02-932-00	==	10	45
062-02-933-00	==	11	52
062-02-934-00	==	11	54
062-02-934-00	==	13	47
062-02-935-00	==	17	13
062-02-936-00	==	17	14
062-02-937-00	==	17	15
062-02-938-00	==	19	29
062-02-939-00	==	19	32
062-02-940-00	==	19	33
062-02-941-00	==	20	35

PART NUMBER	SERIAL NUMBER	TAB.	POS.
062-02-942-00	==	20	51
062-02-943-00	==	20	52
062-02-943-00	==	23	35
062-02-944-00	==	20	53
062-02-945-00	==	21	18
062-02-945-00	==	24	47
062-02-946-00	==	21	20
062-02-946-00	==	24	29
062-02-948-00	==	21	23
062-02-949-00	==	22	44
062-02-949-00	==	25	41
062-02-950-00	==	22	8
062-02-950-00	==	25	13
062-02-951-00	==	23	34
062-02-952-00	==	26	31
062-02-953-00	==	26	32
062-02-954-00	==	26	33
062-02-955-00	==	27	45
062-02-955-00	==	39	26
062-02-956-00	==	27	44
062-02-957-00	==	27	46
062-02-957-00	==	28	44
062-02-957-00	==	39	18
062-02-958-00	==	29	7
062-02-958-00	==	37	17
062-02-959-00	==	29	43
062-02-960-00	==	29	47
062-02-961-00	==	29	55
062-02-962-00	==	30	29
062-02-963-00	==	30	30
062-02-964-00	==	30	31
062-02-965-00	==	30	34
062-02-966-00	==	30	35
062-02-967-00	==	30	36
062-02-968-00	==	30	37
062-02-969-00	==	31	44
062-02-970-00	==	12	38
062-02-971-00	==	31	55
062-02-972-00	==	32	36
062-02-973-00	==	32	37
062-02-974-00	==	33	22
062-02-975-00	==	33	24
062-02-976-00	==	33	27
062-02-977-00	==	33	47
062-02-978-00	==	33	29
062-02-979-00	==	33	31
062-02-980-00	==	33	32
062-02-981-00	==	33	35
062-02-982-00	==	33	51
062-02-983-00	==	33	41
062-02-984-00	==	33	52
062-02-985-00	==	33	53
062-02-986-00	==	33	54
062-02-987-00	==	34	50
062-02-989-00	==	39	8
062-02-990-00	==	39	10
062-02-991-00	==	39	12
062-02-992-00	==	39	13
062-02-993-00	==	39	14
062-02-994-00	==	39	16
062-02-995-00	==	39	15
062-02-996-00	==	39	9
062-02-997-00	==	39	17
062-02-998-00	==	39	23
062-02-999-00	==	14	1

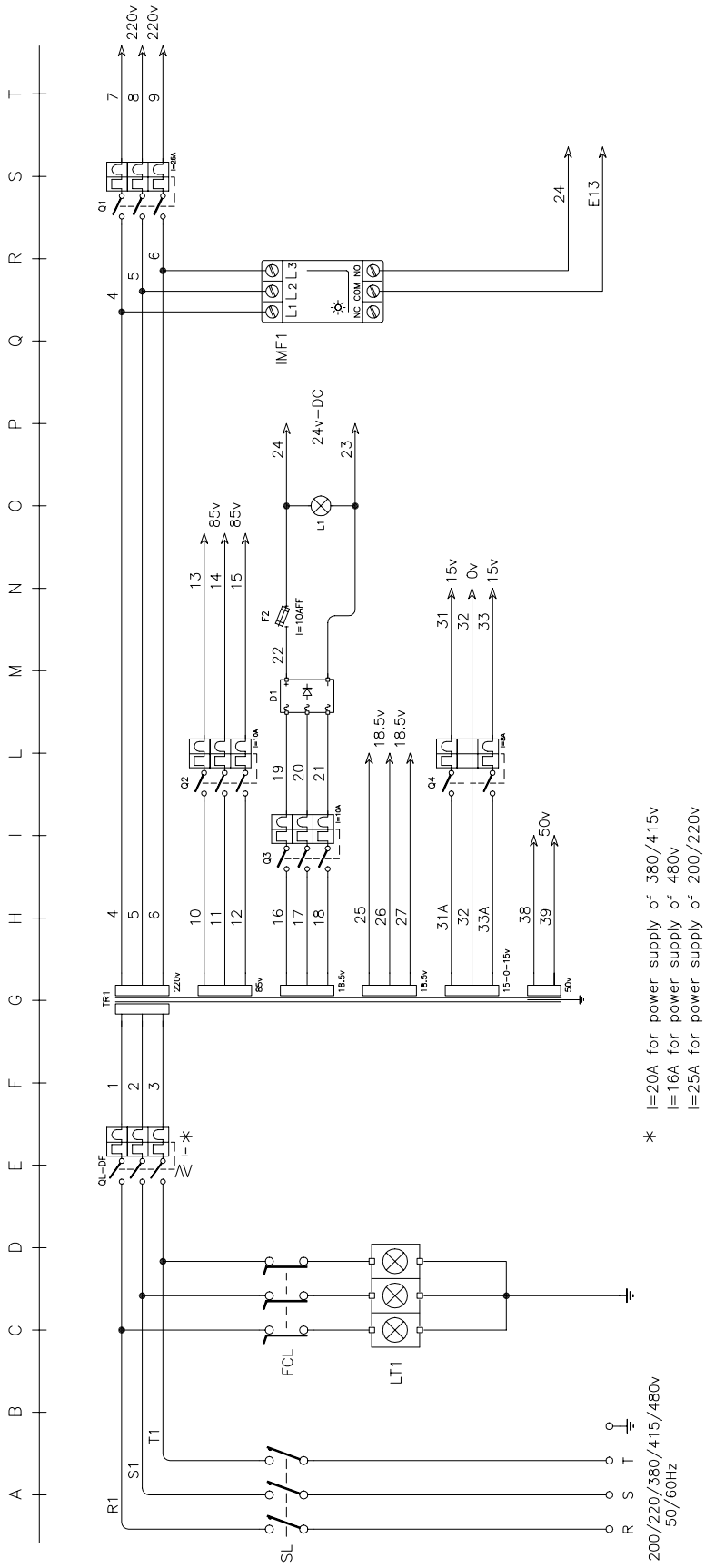
PART NUMBER	SERIAL NUMBER	TAB.	POS.
062-12-001-00	==	14	2
062-12-002-00	==	14	4
062-12-003-00	==	14	7
062-12-004-00	==	14	11
062-12-005-00	==	14	13
062-12-006-00	==	14	14
062-12-007-00	==	14	15
062-12-008-00	==	14	17
062-12-009-00	==	14	18
062-12-010-00	==	14	19
062-12-011-00	==	35	11
062-12-012-00	==	35	14
062-12-015-00	==	35	37
062-12-017-00	==	37	16
062-12-018-00	==	5	12
062-12-018-00	==	16	8
062-12-020-00	==	17	16
062-12-021-00	==	2	59
062-12-022-00	==	7	39
062-12-023-00	==	35	30
062-12-025-00	==	33	49
062-12-026-00	==	8	29
062-12-028-00	==	35	42
062-12-029-00	==	35	43
062-12-030-00	==	40	3
062-12-031-00	==	40	5
062-12-035-00	==	30	41
062-12-036-00	==	30	42
062-12-037-00	==	30	43
062-12-038-00	==	30	44
062-12-039-00	==	30	45
062-12-040-00	==	30	46
062-12-041-00	==	7	40
062-12-042-00	==	7	43
062-12-043-00	==	7	44
062-12-044-00	==	7	48
062-12-045-00	==	18	1
062-12-046-00	==	18	2
062-12-047-00	==	18	7
062-12-048-00	==	18	8
062-12-049-00	==	18	14
062-12-050-00	==	18	16
062-12-051-00	==	18	18
062-12-053-00	==	7	26
062-12-054-00	==	9	4
062-12-056-00	==	33	55
062-12-061-02	==	16	26
062-12-062-00	==	35	54
062-12-063-00	==	35	53
062-12-079-00	==	16	14
062-12-111-00	==	5	42
062-12-113-00	==	2	61
062-12-114-00	==	35	45
062-12-117-00	==	35	49
062-12-118-00	==	35	50
062-12-119-00	==	35	52
062-12-120-00	==	18	24
062-12-121-00	==	16	7
062-12-121-00	==	27	16
062-12-128-00	==	30	47

PART NUMBER	SERIAL NUMBER	TAB.	POS.
062-12-130-00	==	15	1
062-12-131-00	==	15	4
062-12-132-00	==	15	8
062-12-133-00	==	15	9
062-12-134-00	==	15	12
062-12-135-00	==	15	13
062-12-136-00	==	15	15
062-12-137-00	==	15	2
062-12-138-00	==	15	3
062-12-139-00	==	15	5
062-12-140-00	==	15	6
062-12-141-00	==	15	11
062-12-142-00	==	15	17
062-12-143-00	==	15	18
062-12-144-00	==	15	29
062-12-145-00	==	15	30
062-12-146-00	==	15	31
062-12-147-00	==	16	25
062-12-148-00	==	16	11
062-12-149-00	==	16	5
062-12-151-00	==	16	12
062-12-152-00	==	16	13
062-12-153-00	==	16	16
062-12-154-00	==	16	17
062-12-155-00	==	16	18
062-12-156-00	==	16	19
062-12-157-00	==	16	22
062-12-158-00	==	16	10
062-12-159-00	==	16	24
062-12-161-00	==	16	27
062-12-162-00	==	5	33
062-12-162-00	==	16	28
062-12-163-00	==	16	29
062-12-164-00	==	16	30
062-12-165-00	==	16	31
062-12-169-00	==	6	15
062-12-169-00	==	34	12
062-12-173-00	==	17	1
062-12-179-00	==	30	48
062-12-179-00	==	30	49
062-12-201-00	==	39	27
062-12-202-00	==	39	6
062-12-203-00	==	35	55
062-12-204-00	==	35	1
062-12-208-00	==	2	60
062-12-208-00	==	2	60
062-12-209-00	==	2	62
062-12-210-00	==	2	63
062-12-211-00	==	2	64
062-12-212-00	==	2	50
062-12-213-00	==	3	19
062-12-213-00	==	3	22
062-12-213-00	==	4	25
062-12-213-00	==	4	35
062-12-213-00	==	20	21
062-12-213-00	==	22	17
062-12-213-00	==	22	31
062-12-213-00	==	25	7
062-12-213-00	==	25	28
062-12-215-00	==	4	43
062-12-216-00	==	4	45
062-12-217-00	==	4	47
062-12-218-00	==	4	48
062-12-219-00	==	4	52
062-12-220-00	==	4	54
062-12-220-00	==	4	55
062-12-222-00	==	12	39
062-12-223-00	==	12	40
062-12-224-00	==	12	41
062-12-225-00	==	5	22
062-12-225-00	==	16	20
062-12-226-00	==	12	46
062-12-227-00	==	12	47
062-12-228-00	==	12	45
062-12-229-00	==	5	1
062-12-230-00	==	5	2
062-12-231-00	==	5	3
062-12-232-00	==	5	4
062-12-233-00	==	5	6
062-12-234-00	==	5	7
062-12-235-00	==	5	9
062-12-235-00	==	5	31
062-12-237-00	==	5	11
062-12-238-00	==	5	13
062-12-239-00	==	5	14
062-12-240-00	==	5	15
062-12-241-00	==	5	16
062-12-242-00	==	5	17
062-12-243-00	==	5	18
062-12-244-00	==	5	19
062-12-245-00	==	5	20
062-12-246-00	==	5	21
062-12-247-00	==	5	23
062-12-248-00	==	5	24
062-12-249-00	==	5	26
062-12-250-00	==	5	27
062-12-251-00	==	5	28
062-12-252-00	==	5	29
062-12-253-00	==	5	32
062-12-254-00	==	5	34
062-12-255-00	==	5	35
062-12-256-00	==	5	36
062-12-257-00	==	5	37
062-12-258-00	==	5	38
062-12-259-00	==	5	40
062-12-259-00	==	6	32
062-12-260-00	==	5	41
062-12-261-00	==	39	28
062-12-262-00	==	36	26
062-12-263-00	==	36	27
062-12-265-00	==	4	59
062-12-266-00	==	4	60
062-12-267-00	==	4	61
062-12-268-00	==	35	28
062-12-269-00	==	39	29
062-12-721-00	==	35	51
062-12-725-00	==	35	13
062-22-002-00	==	22	45
062-22-002-01	==	22	46
062-22-003-00	==	25	42
062-22-003-01	==	25	43

PART NUMBER	SERIAL NUMBER	TAB.	POS.
510-14-061-00	≥062.03.240	44	14
510-14-061-01	≥062.03.240	44	15
510-14-061-02	≥062.03.240	44	26
510.14.061.04	≥062.03.240	41a	4
510-14-061-04	≥062.03.240	44	21
510-14-061-05	≥062.03.240	41a	5
510-14-061-05	≥062.03.240	44	22
510-14-061-06	≥062.03.240	41a	6
510-14-061-06	≥062.03.240	44	27
510-14-061-16	≥062.03.240	44	11
510-14-061-17	≥062.03.240	44	12
510-14-061-18	≥062.03.240	44	13
510-14-061-20	≥062.03.240	41a	7
510-14-061-21	≥062.03.240	41a	8
510-14-061-22	≥062.03.240	41a	9
510-14-061-32	≥062.03.240	44	23
510-14-061-33	≥062.03.240	44	24
510-14-061-36	≥062.03.240	44	18
510-14-061-37	≥062.03.240	44	19
510-14-061-40	≥062.03.240	41a	10
510-14-061-41	≥062.03.240	41a	11
510-14-061-52	≥062.03.240	41a	13
510-14-061-53	≥062.03.240	41a	14
510-14-061-54	≥062.03.240	41a	15
510-14-061-66	≥062.03.240	44	7
510-14-061-67	≥062.03.240	44	8
510-14-061-68	≥062.03.240	44	9
510-14-061-78	≥062.03.240	41	9
510-14-061-79	≥062.03.240	41	10
510-14-061-90	≥062.03.240	45	19
510-14-061-90	≥062.03.240	43	9
510-14-061-91	≥062.03.240	45	20
510-14-061-91	≥062.03.240	43	10
510-14-061-98	≥062.03.240	41	11
510-14-061-98	≥062.03.240	41a	12
510-14-061-98	≥062.03.240	44	20
510-14-061-98	≥062.03.240	45	21
510-14-061-98	≥062.03.240	43	11
510-14-061-99	≥062.03.240	44	25

PART NUMBER	SERIAL NUMBER	TAB.	POS.
510-17-005-00	≥062.03.250	41	1
510-17-005-05	≥062.03.250	41	2
510-17-065-10	≥062.03.247	42	7

PART NUMBER	SERIAL NUMBER	TAB.	POS.



MISSED OR INVERTED POWER PHASE CONTROL

MAIN POWER ON LAMP

24v–DC POWER SUPPLY

* I=20A for power supply of 380/415v
I=16A for power supply of 480v
I=25A for power supply of 200/220v

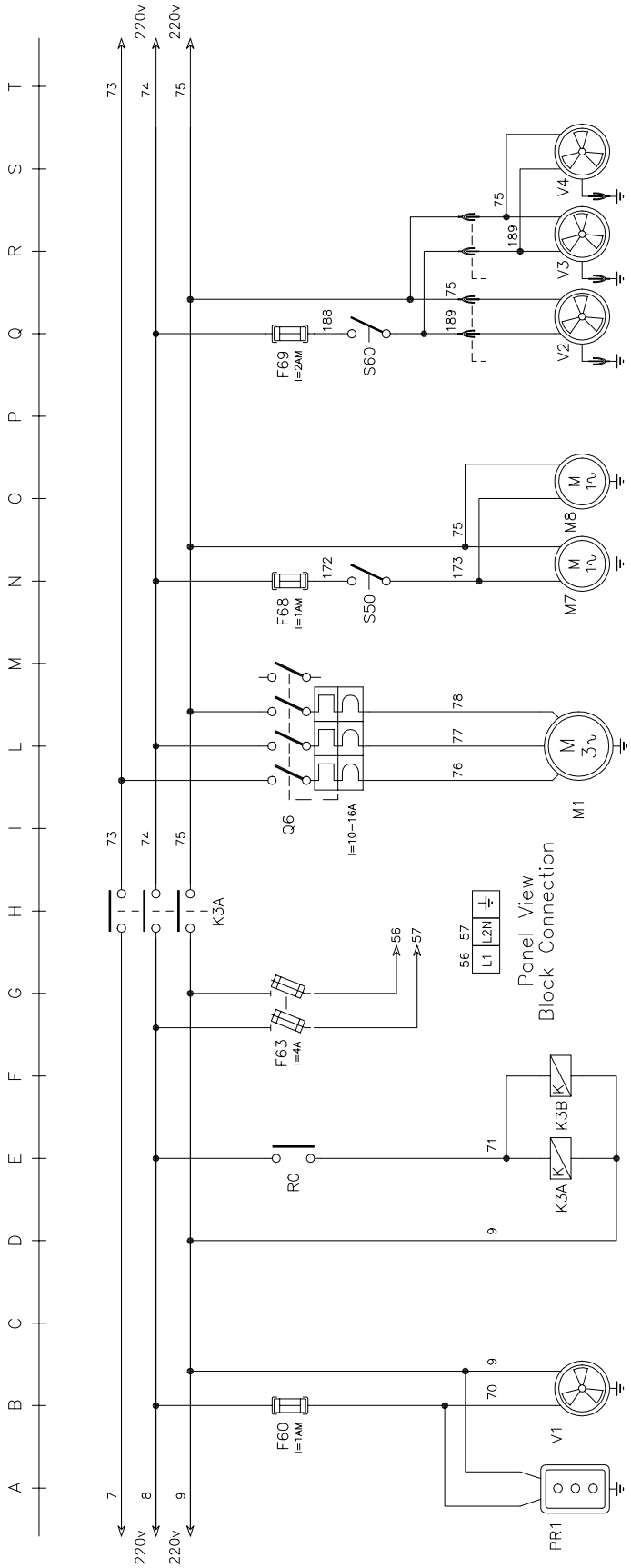
MAIN POWER TRANSFORMER

DIFFERENTIAL AUTOMATIC POWER SWITCH

3PH OK LIGHT INDICATOR

MAIN POWER SWITCH

Allen Bradley PLC



CAP VENTILATION

CAP VENTILATION

CAP VENTILATION

LATERAL CUTTING MOTORS
M7 – UPPER M8 – LOWER

VACUUM PUMP

SET UP CONTACTOR

PLC & DISPLAY POWER SUPPLY

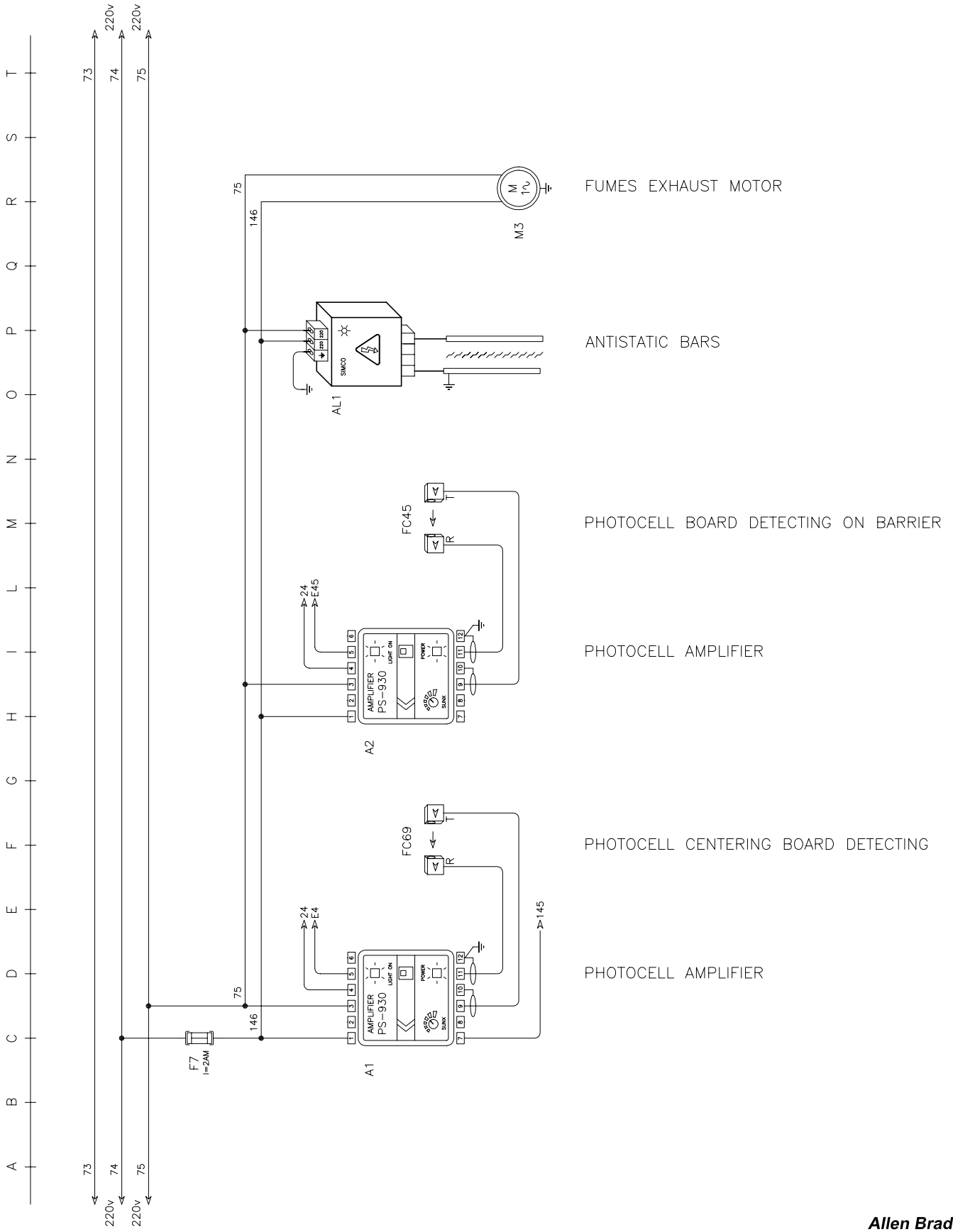
SET UP CONTACTORS

SET UP CONTACTORS

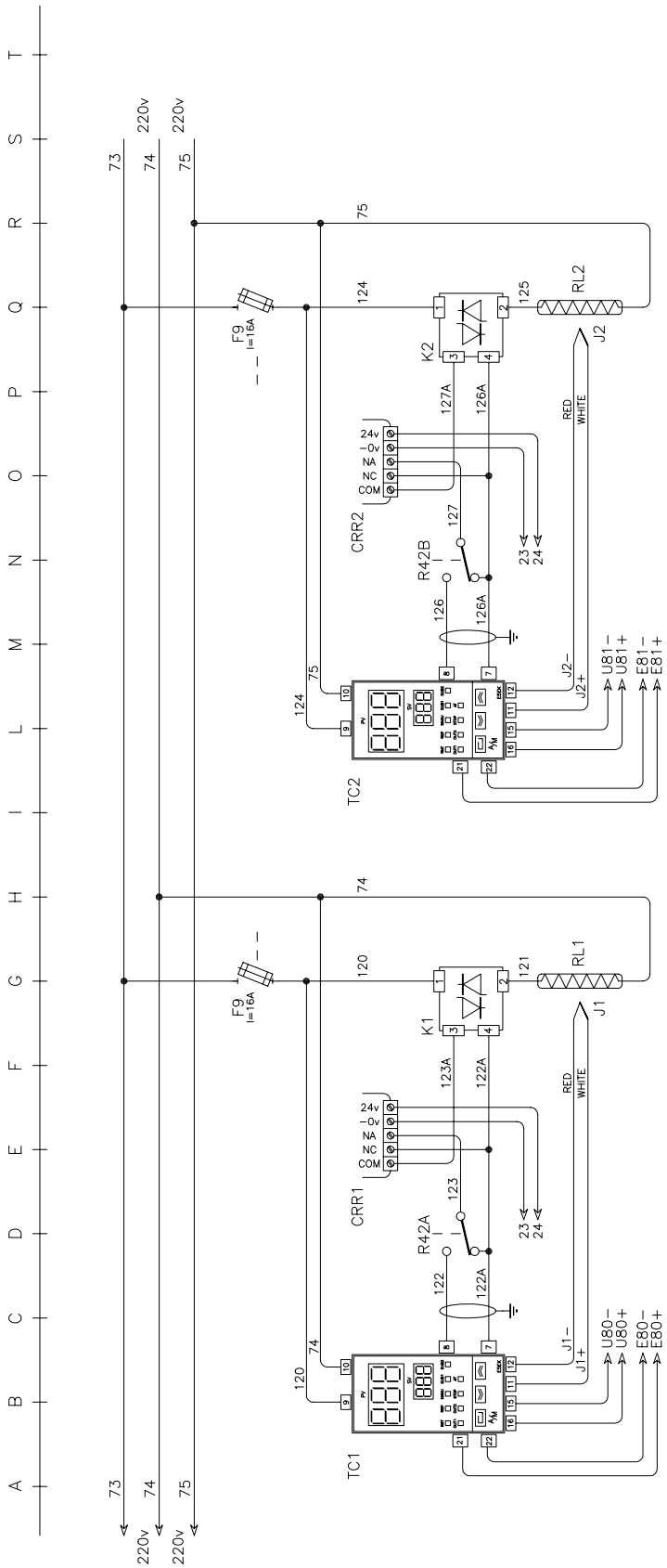
ELECTRICAL BOX FAN

HUB POWER SUPPLY FOR E.D.S.

Allen Bradley PLC



Allen Bradley PLC



INFRARED LAMP FOR LOWER LAMINATION ROLL

ROTATING CONTROL FOR
LOWER LAMINATION ROLL

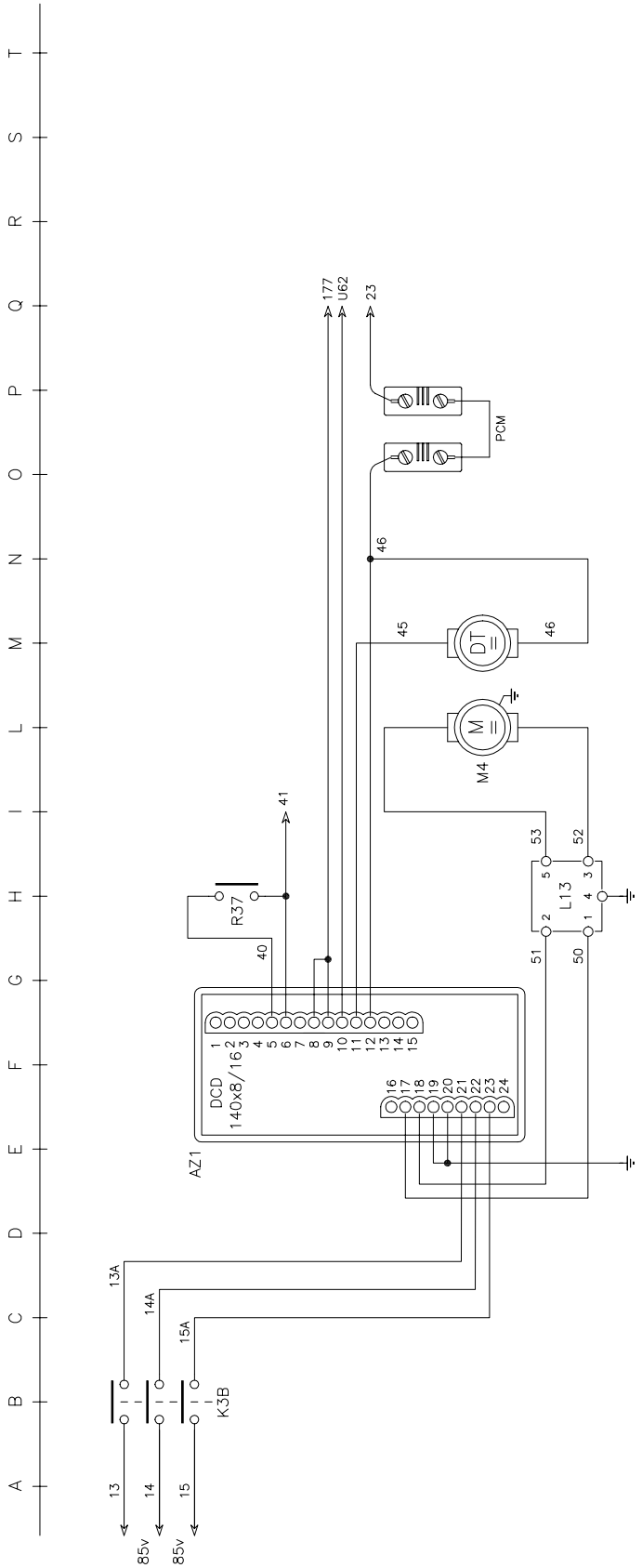
LOWER LAMINATION ROLL THERMOREGULATOR

INFRARED LAMP FOR UPPER LAMINATION ROLL

ROTATING CONTROL FOR
UPPER LAMINATION ROLL

UPPER LAMINATION ROLL THERMOREGULATOR

Allen Bradley
PLC



TACHOMETER DYNAMO

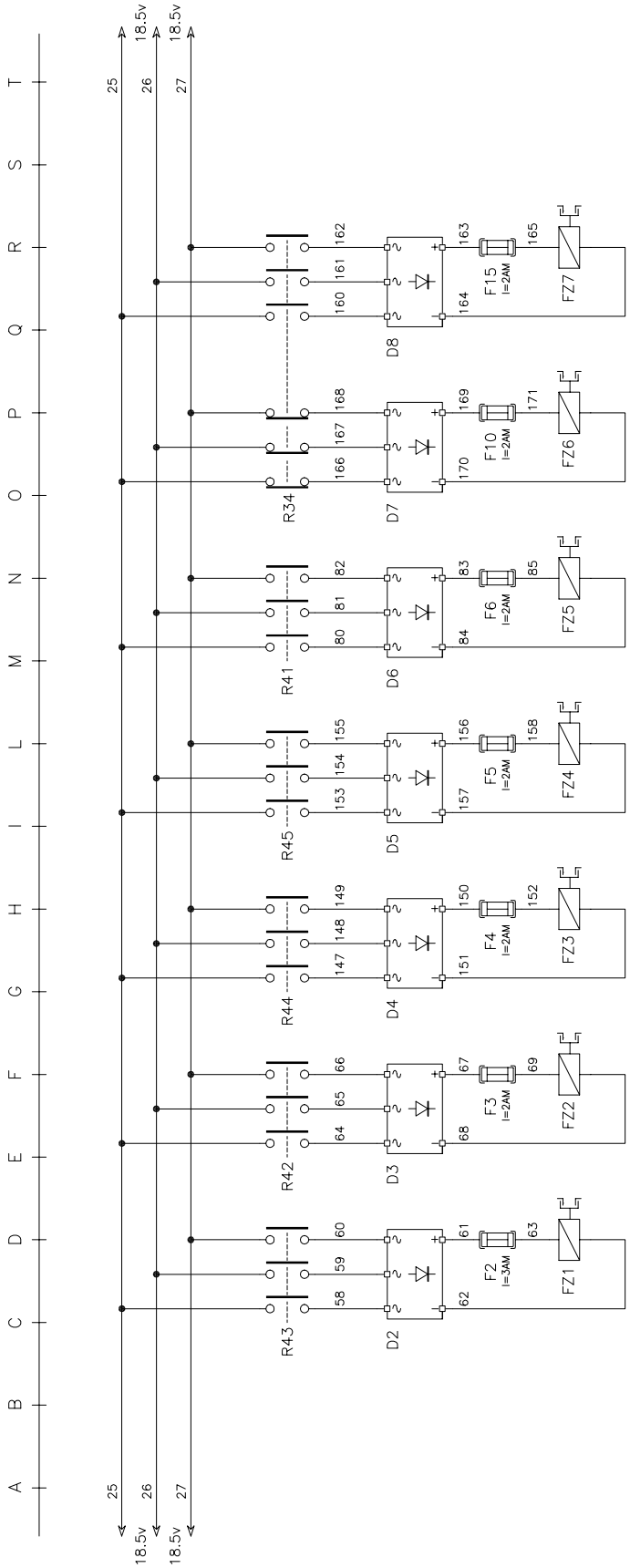
CONVEYOR MOTOR

MOTOR INDUCTANCE

DRIVER FOR CONVEYOR MOTOR
DCD / PWME

SET UP CONTACTOR

Allen Bradley
PLC



ELECTROMAGNETIC CLUTCH FOR INTRODUCTION BOARD ROLL WITH INPUT CONVEYOR ROLLS

ELECTROMAGNETIC CLUTCH FOR INTRODUCTION BOARD ROLL

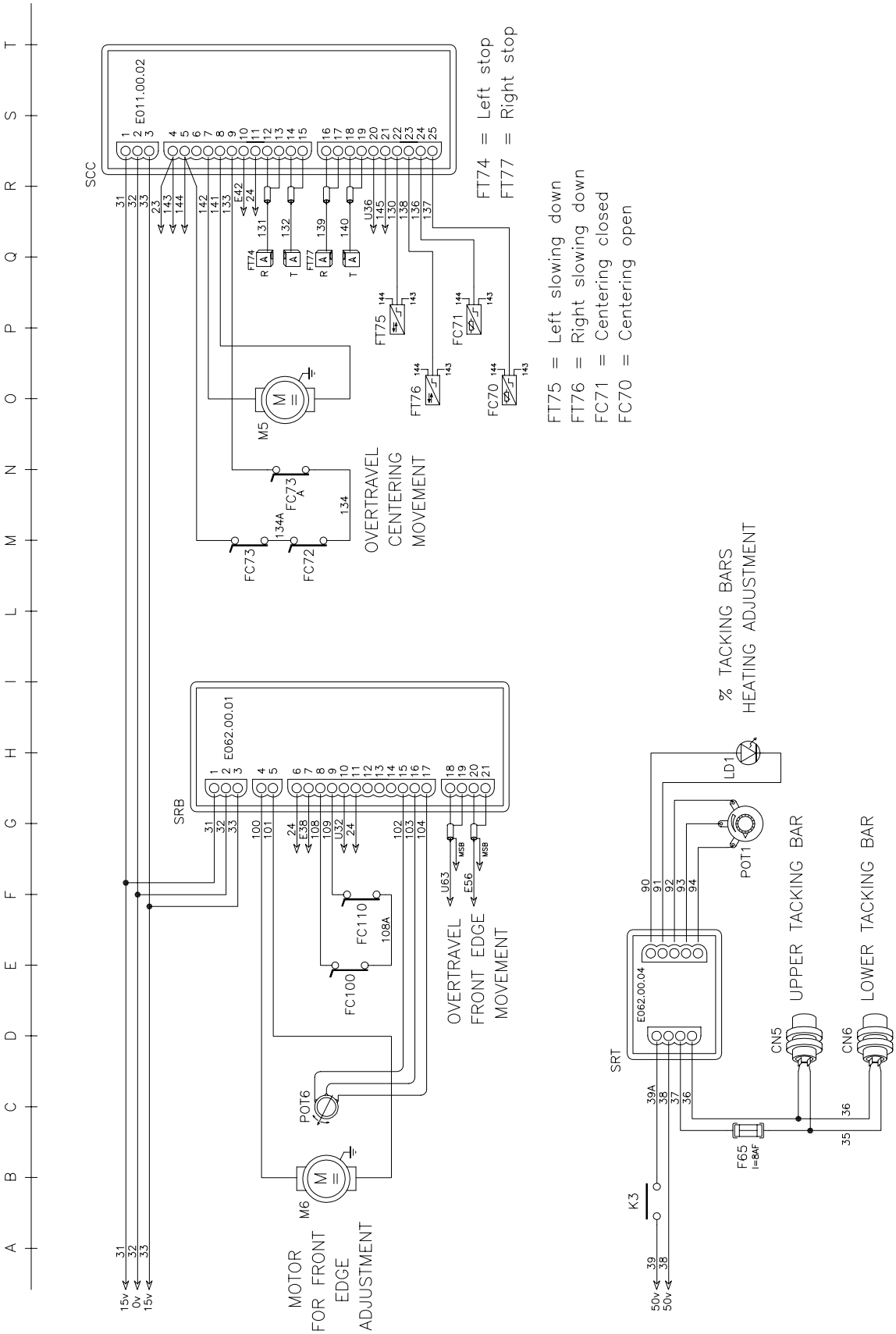
ELECTROMAGNETIC CLUTCH FOR INPUT CONVEYOR ROLLS

ELECTROMAGNETIC CLUTCH FOR LOWER FILM FEED ROLL

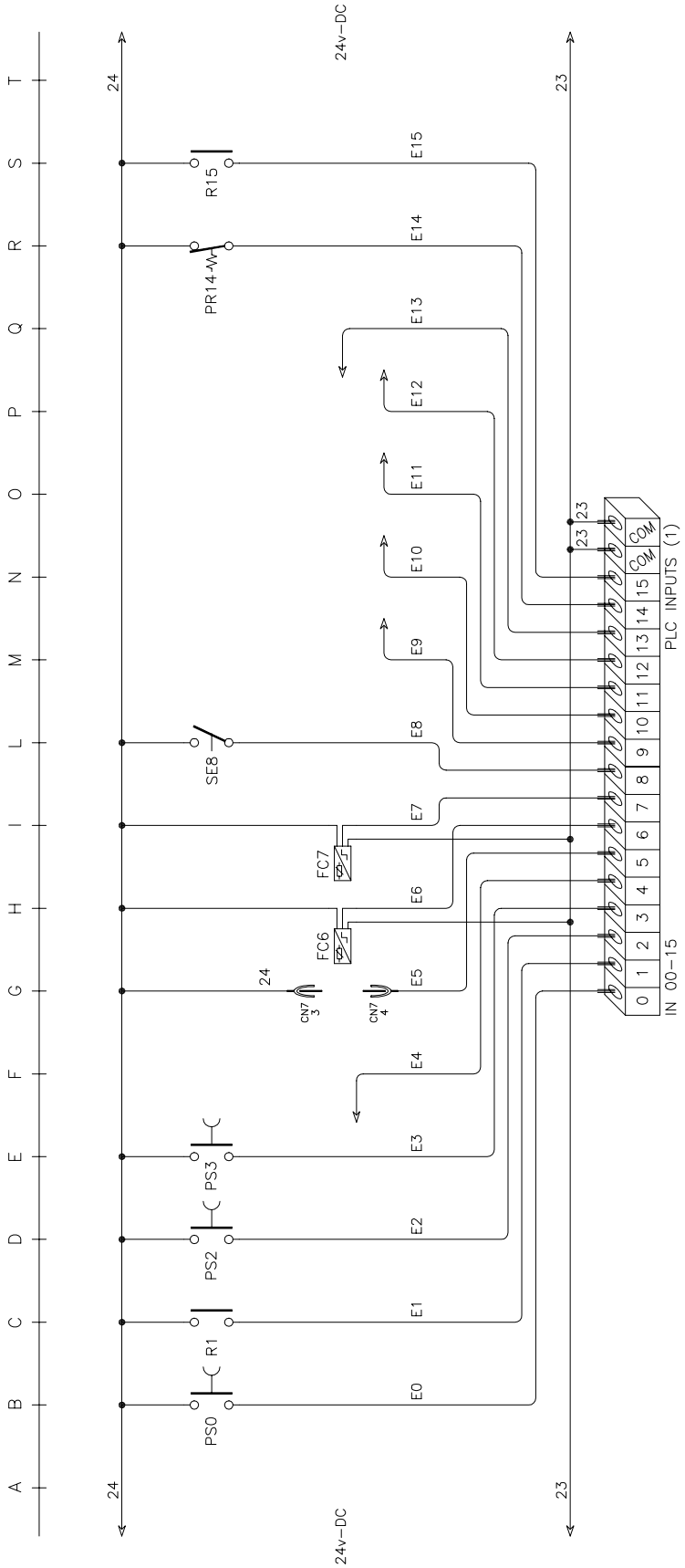
ELECTROMAGNETIC CLUTCH FOR UPPER FILM FEED ROLL

ELECTROMAGNETIC CLUTCH FOR LAMINATION ROLLS AND OUTPUT ROLLER

ELECTROMAGNETIC CLUTCH FOR ROTATING SECTORS



Allen Bradley PLC



SAFETY GUARD SWITCHES AND EXCLUSION KEY SELECTOR

COMPRESSED AIR PRESSURE SWITCH

MISSED OR INVERTED PHASE CONTROL

FILM LOADING SET POINT PUSH BUTTONS

LOWER VACUUM OFF SELECTORS

UPPER VACUUM OFF SELECTORS

FILM ROLLS FREE – GREAPED PUSH BUTTONS

UPPER – BOTH LAMINATION SELECTOR IN SET POINT

SENSOR FOR LOWER TENSION ROLL AT WORK POINT

SENSOR FOR UPPER TENSION ROLL AT WORK POINT

ENABLE WAITING FROM OTHER UNITS IN LINE

PHOTOCELL CENTERING BOARD DETECTING

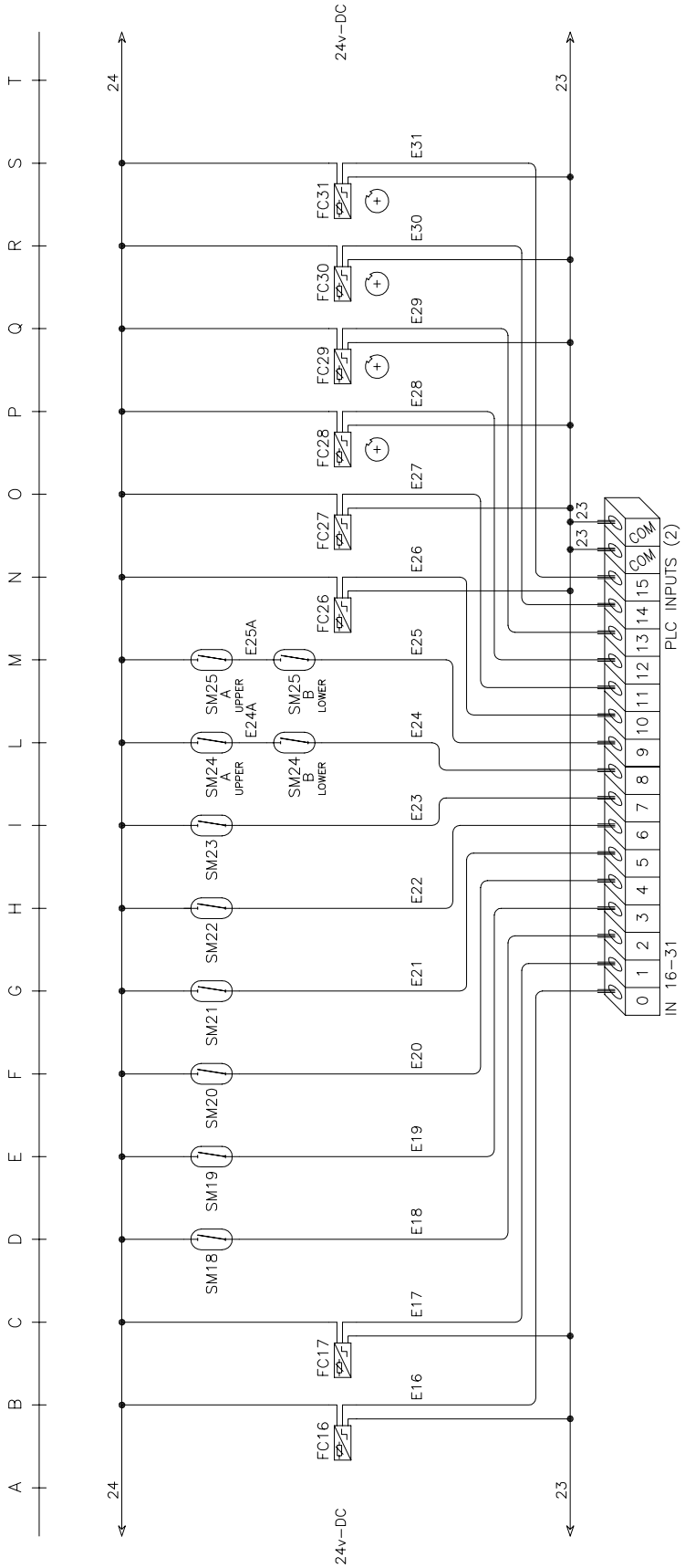
CYCLE STOP PUSH BUTTON

CYCLE START PUSH BUTTON

EMERGENCY PUSH BUTTONS LINE

SET UP ON PUSH BUTTON

Allen Bradley PLC



SENSOR FOR SLOWING DOWN SECTOR POSITION CAM

SENSOR FOR END CUT POSITION CAM

SENSOR FOR TACKING POSITION CAM

SENSOR FOR INITIAL CUT POSITION CAM

SENSOR FOR LOWER CUTTING DEVICE HOOKED

SENSOR FOR UPPER CUTTING DEVICE HOOKED

MAGNETIC SENSOR FOR UPPER & LOWER INDEX IN WORK POINT

MAGNETIC SENSOR FOR UPPER & LOWER INDEX IN SET POINT

MAGNETIC SENSOR FOR LOWER FOLLOWER CYLINDER IN WORK POINT

MAGNETIC SENSOR FOR LOWER FOLLOWER CYLINDER IN SET POINT

MAGNETIC SENSOR FOR UPPER FOLLOWER CYLINDER IN WORK POINT

MAGNETIC SENSOR FOR UPPER FOLLOWER CYLINDER IN SET POINT

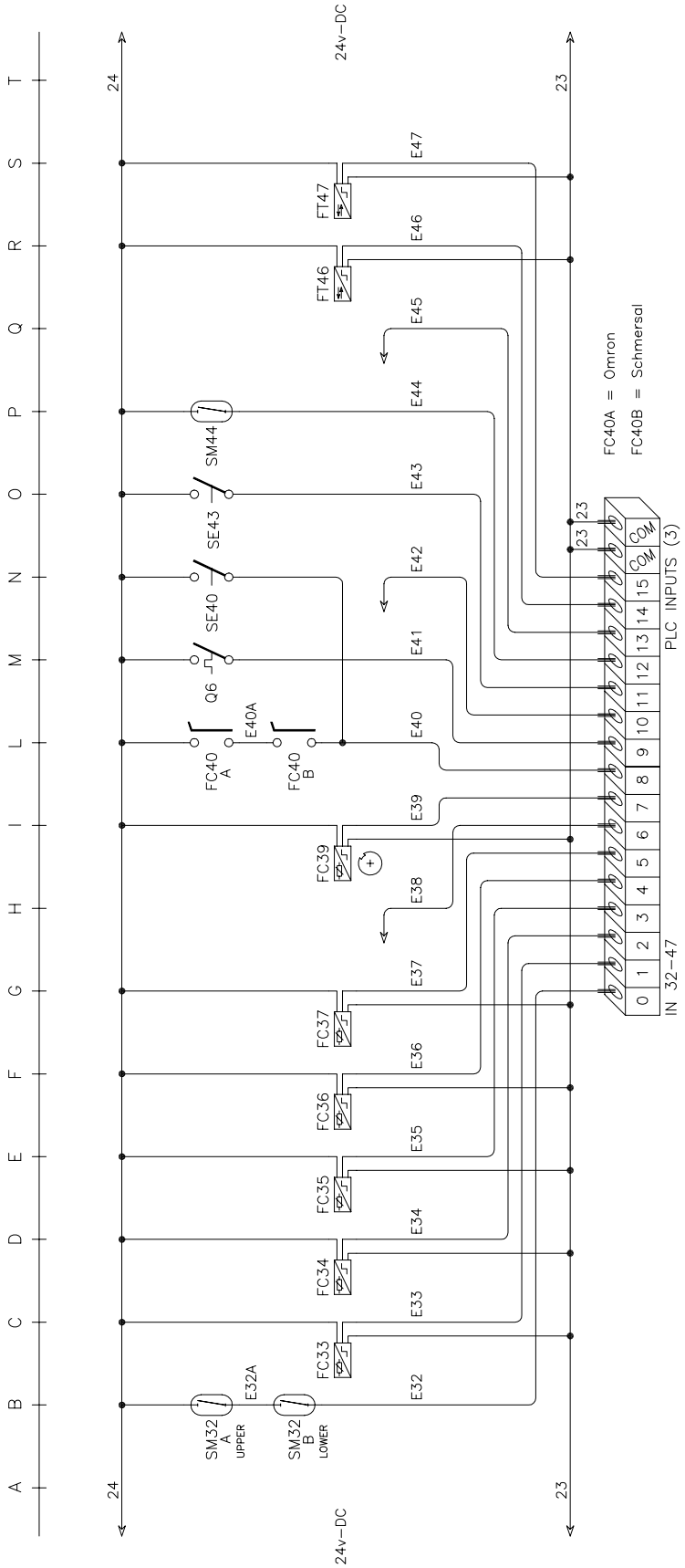
MAGNETIC SENSOR FOR BARRIER OPEN (DOWN / SET POINT)

MAGNETIC SENSOR FOR BARRIER CLOSED (UP / WORK POINT)

SENSOR FOR INTRODUCTION BOARD CYLINDER IN SET POINT

SENSOR FOR INTRODUCTION BOARD CYLINDER IN WORK POINT

Allen Bradley PLC



PHOTOCELL REAR EDGE BOARD DETECTING

PHOTOCELL OUTPUT BOARD
FROM LAMINATION AREA

PHOTOCELL BOARD DETECTING ON BARRIER

MAGNETIC SENSOR FINGERS RETRACTING
CONTROL FOR THIN PANEL DEVICE

END OF FILM & MISSED CUT ON–OFF
CONTROL SELECTOR (NO=ON – NC=OFF)

LATERAL CENTERING FAILURE SIGNAL

MOTOR VACUUM PUMP OVERLOAD SWITCH

MICROSWITCH FOR SLIDING TROLLEY
LOOKED & EXLUSION KEY SELECTOR

SENSOR FOR LAMINATION ROLLS
CLOSING POSITION CAM

FRONT EDGE OVER TRAVEL CONTROL

SENSOR FOR LOWER END OF FILM
& MISSED CUT CONTROL

SENSOR FOR UPPER END OF FILM
& MISSED CUT CONTROL

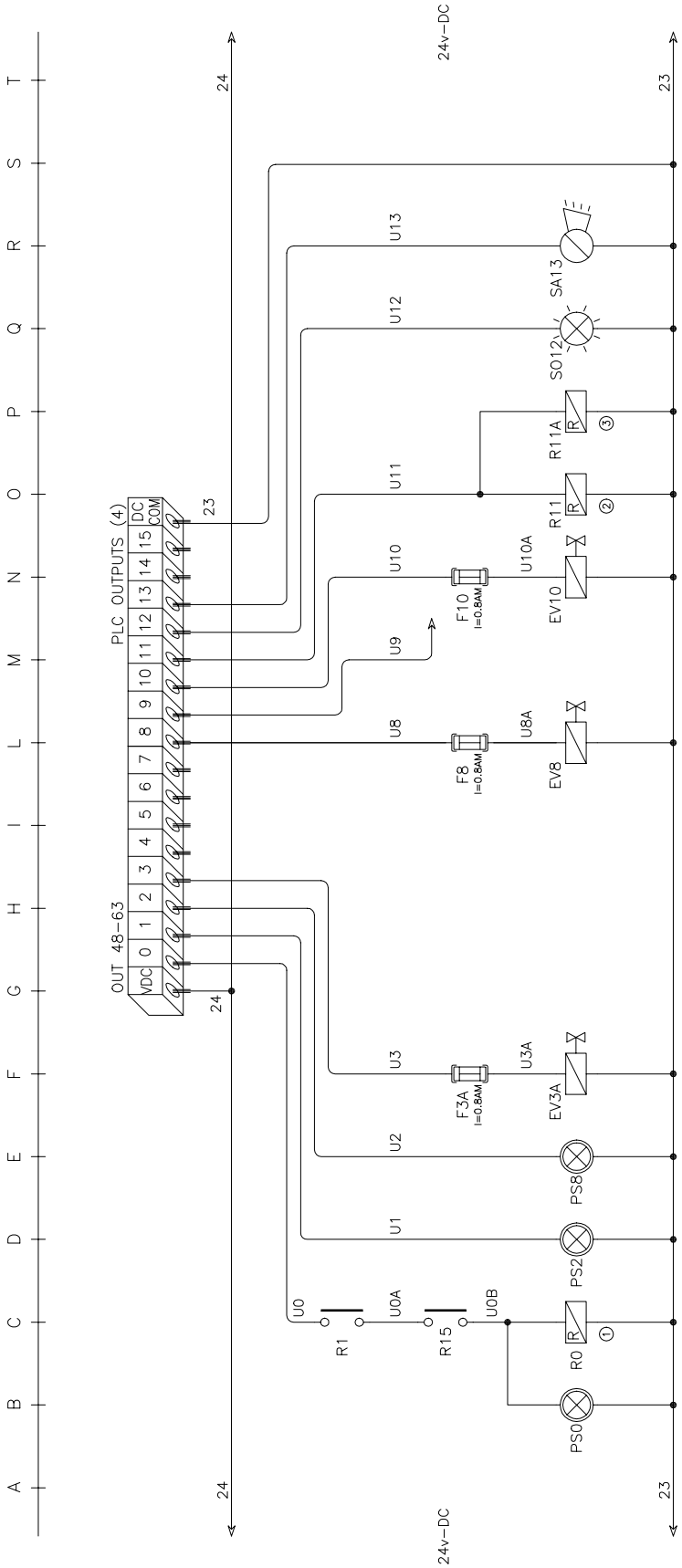
SENSOR FOR TACKING BAR CLOSED

SENSOR FOR LAMINATION ROLL CLOSED

SENSOR FOR LAMINATION ROLLS
& TACKING BARS OPEN

MAGNETIC SENSOR FOR UPPER
& LOWER FILM ROLLS GREAPED

Allen Bradley PLC



ACOUSTIC BUZZER ALARM

FLASHING LAMP ALARM

DYNAMO VOLTAGE ENABLING RELAY

RELAY FOR SPEED RANGE SELECTION

E.V. CLOSING LAMINATION ROLLS
EXTRA PRESSURE

ENABLE FOR CONTROL PANELS
INTO MACHINE (LEFT SHOULDER)

E.V. FOR FILM DYNAMIC TENSION ROLLS

E.V. FOR THIN PANEL DEVICE

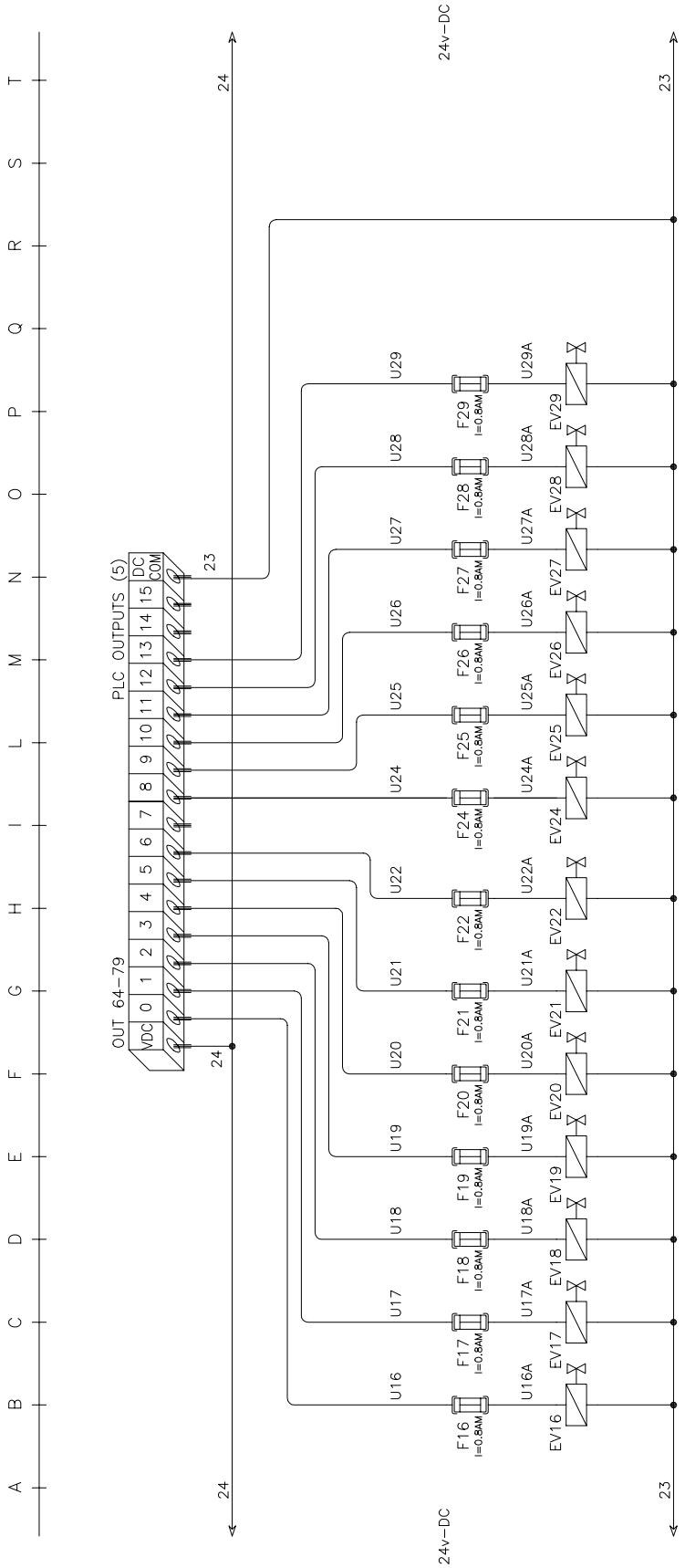
UPPER – BOTH LAMINATION
SELECTOR LAMP

CYCLE START PUSH BUTTON LAMP

RELAY FOR SET UP CONTACTORS

SET UP ON PUSH BUTTON LAMP

Allen Bradley
PLC



E.V. FOR LOWER CUT

E.V. FOR UPPER CUT

E.V. FOR VACUUM IN MAIN
LOWER EXHAUST SECTOR

E.V. FOR VACUUM IN MAIN
UPPER EXHAUST SECTOR

E.V. FOR INDEX INSERT UPPER & LOWER

E.V. FOR GRIP–FREE FILM ROLLS

E.V. FOR OPENING/CLOSING ROLLS

E.V. FOR LOWER CUTTING DEVICE

E.V. FOR HOOKING CUTTING DEVICE

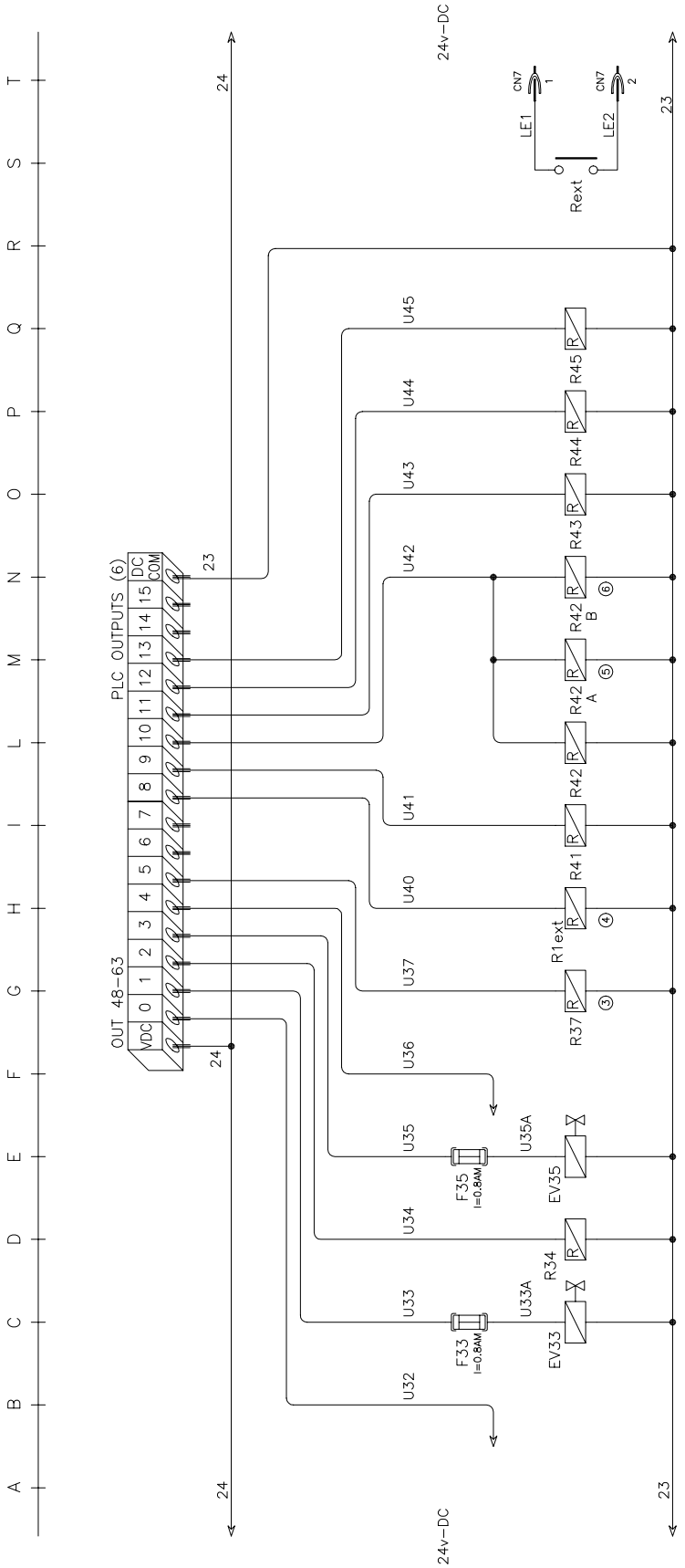
E.V. FOR CLOSING LAMINATION
ROLLS & TACKING BAR

E.V. FOR INTRODUCTION
BOARD CYLINDER

E.V. FOR FRONT BARRIER

E.V. FOR GRIPPING BOARD ROLLS UP

Allen Bradley
PLC



EL. CLUTCH FOR LOWER FILM FEED ROLL

EL. CLUTCH FOR UPPER FILM FEED ROLL

EL. CLUTCH FOR LAMIN.
ROLLS & OUTPUT ROLLER

HEATING INHIBITION LOWER LAMINATION ROLL

HEATING INHIBITION UPPER LAMINATION ROLL

EL. CLUTCH FOR LAMINATION ROLLS
& OUTPUT ROLLER

EL. CLUTCH FOR INPUT CONVEYOR ROLLER

ON SIGNAL TO A LOADER

ENABLE FOR CONVEYOR MOTOR

ENABLE FOR CENTERING CONTROL BOARD

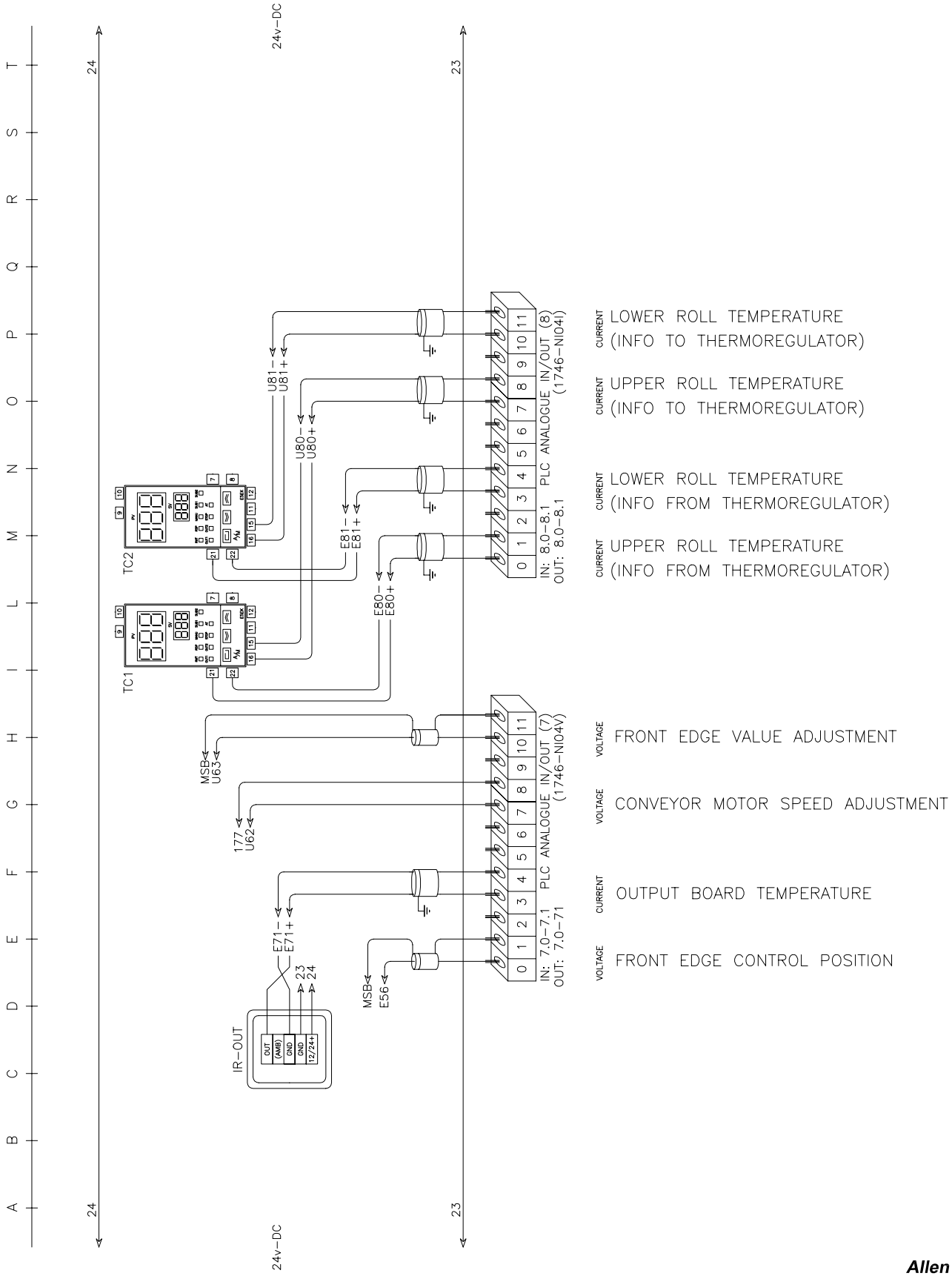
E.V. FOR VACUUM IN SECONDARY
UPPER EXHAUST SECTOR

EL. CLUTCH FOR INTRODUCTION ROLL
CONVEYOR OR INTRODUCTION

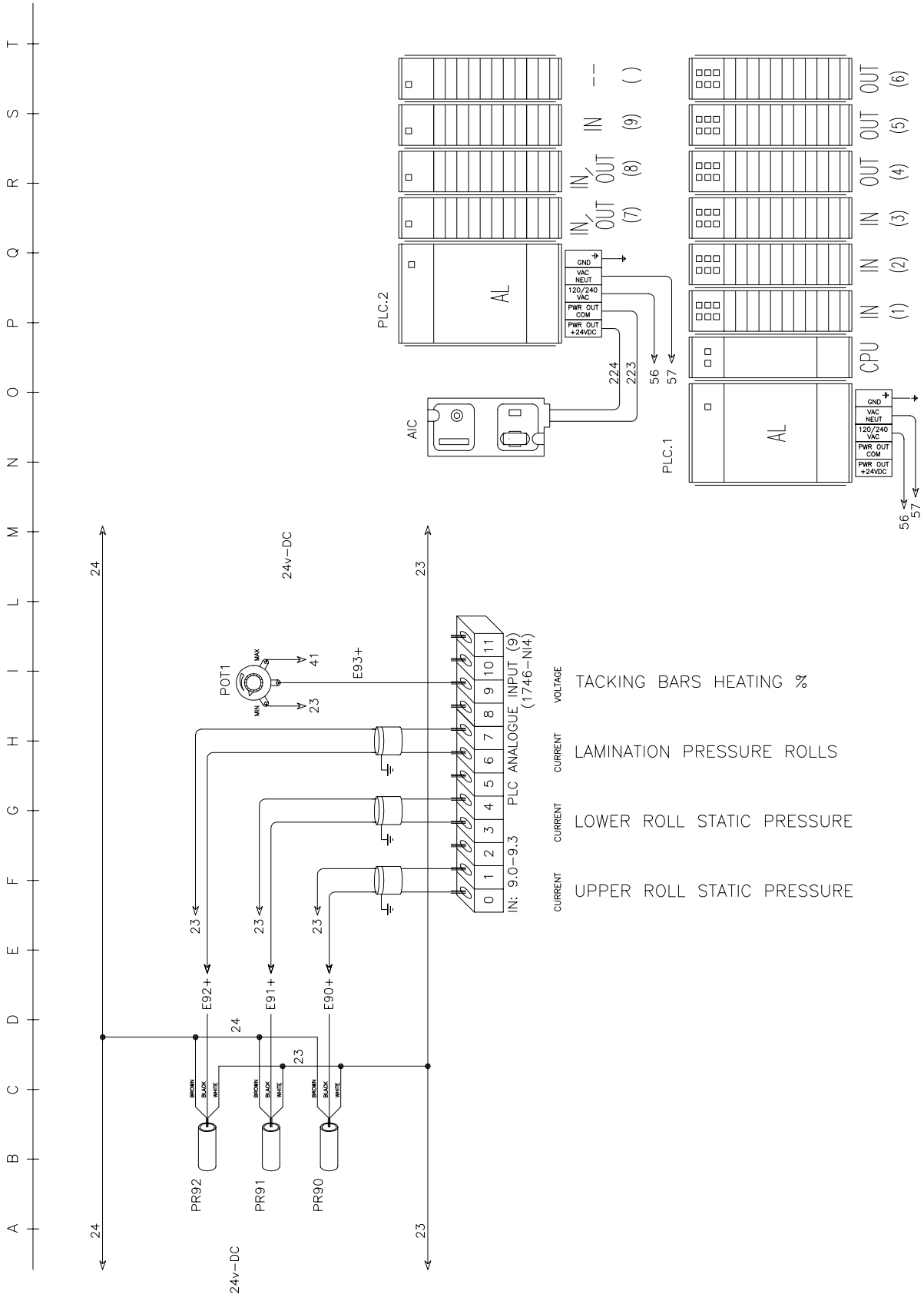
E.V. FOR VACUUM IN SECONDARY
LOWER EXHAUST SECTOR

ENABLE FOR DRIVER OF FRONT EDGE

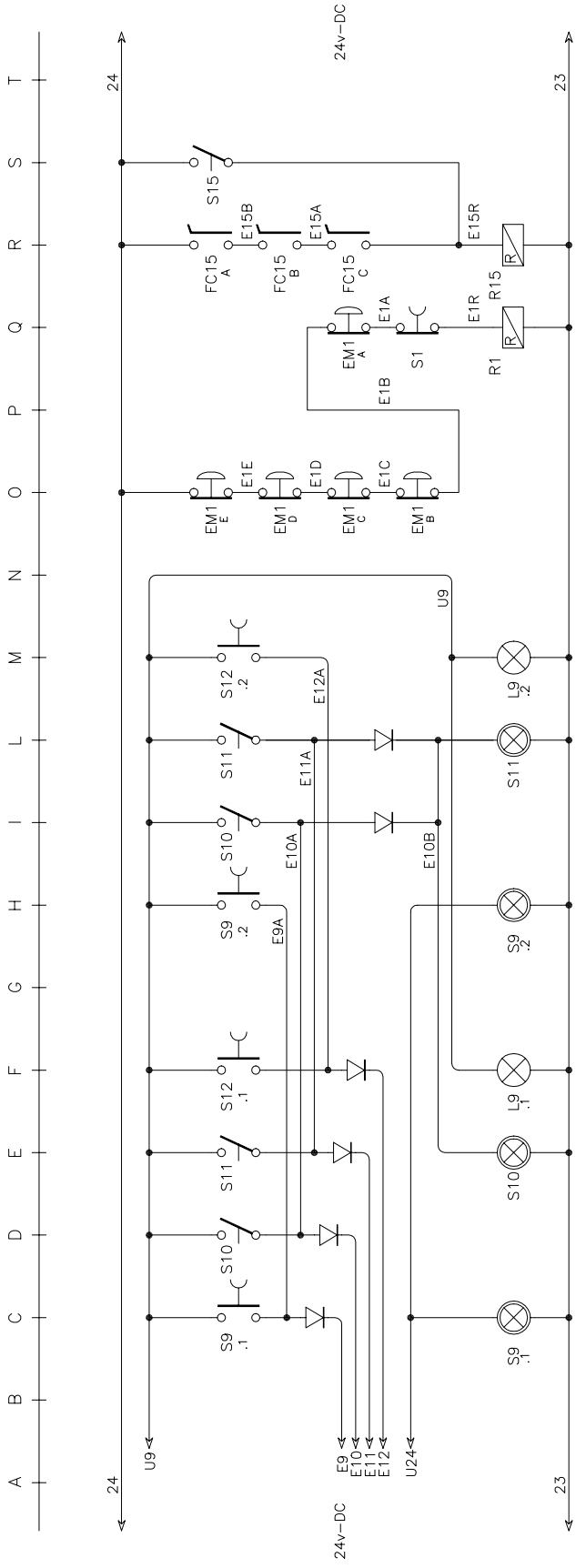
Allen Bradley
PLC



Allen Bradley PLC



Allen Bradley PLC



EXCLUSION KEY SELECTOR

SAFETY GUARD LINE

EMERGENCY RELAY
EMERGENCY PUSH BUTTONS LINE

EMERGENCY PUSH BUTTONS LINE

FILM LOADING SET POINT PUSH BUTTON

LOWER VACUUM OFF SELECTOR

UPPER VACUUM OFF SELECTOR

FILM ROLLS FREE/GREAPED
PUSH BUTTON

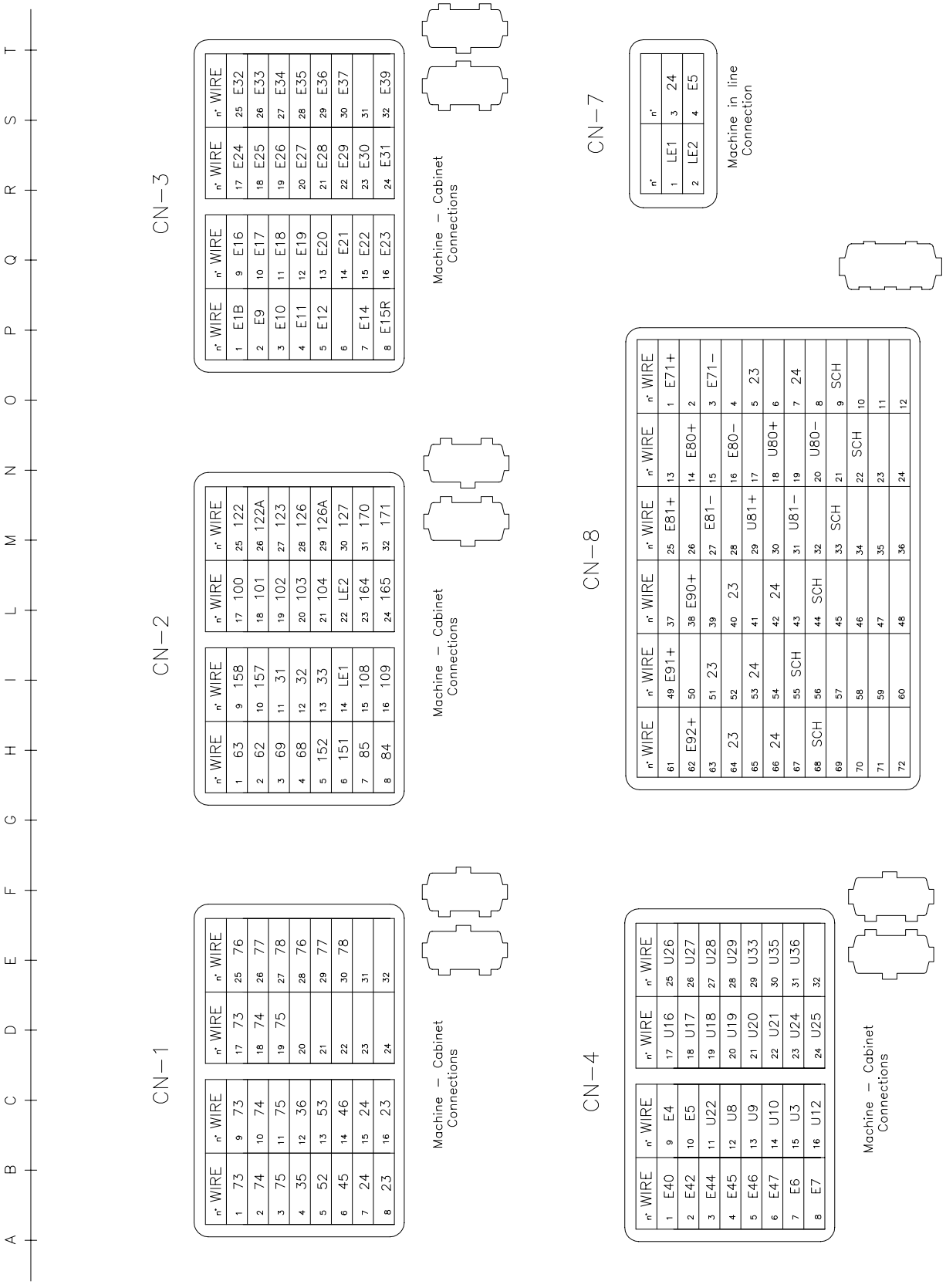
FILM LOADING SET POINT PUSH BUTTON

LOWER VACUUM OFF SELECTOR

UPPER VACCUM OFF SELECTOR

FILM ROLLS FREE/GREAPED PUSH BUTTON

Allen Bradley
PLC



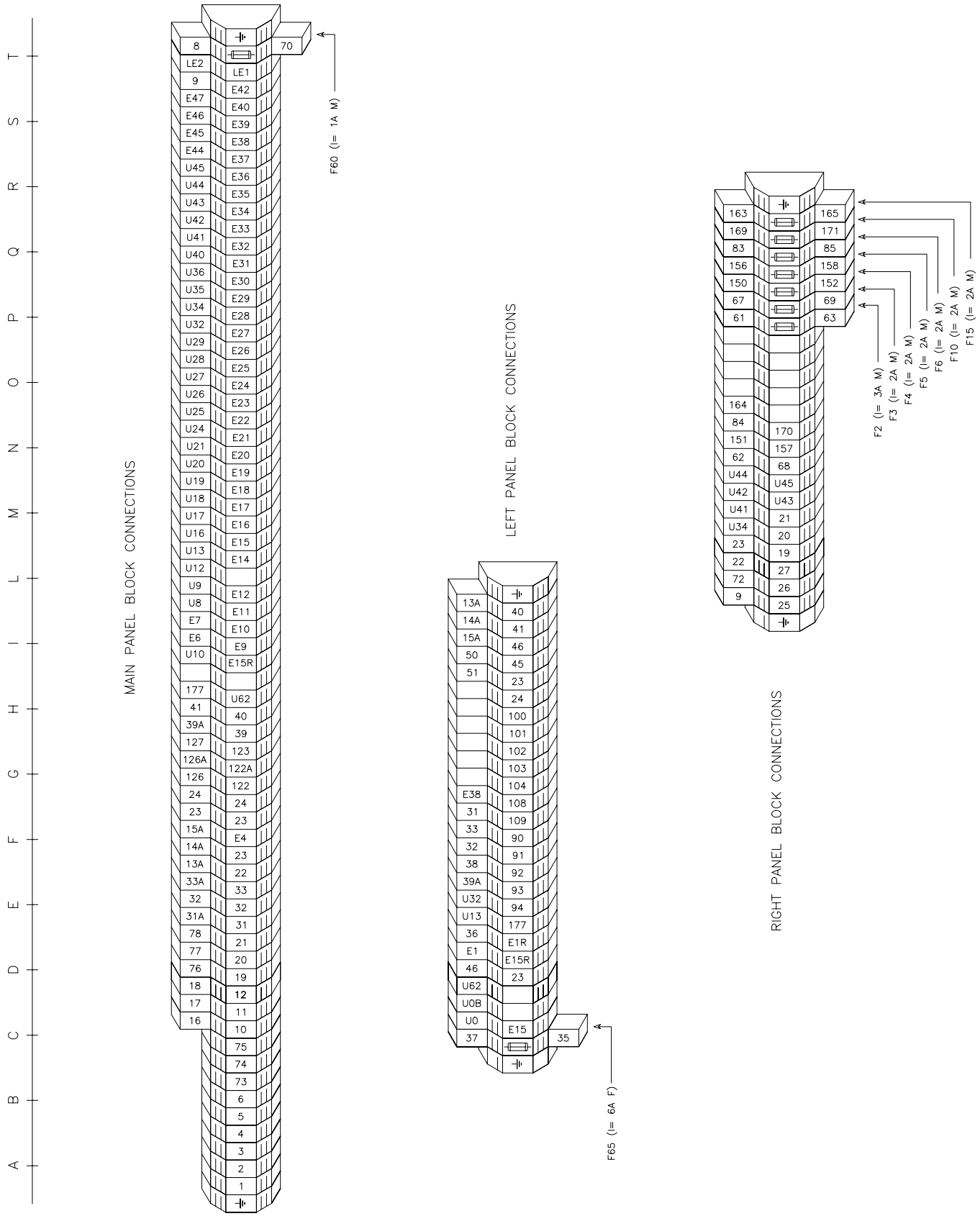
Allen Bradley
PLC

Drawn by Antonio Cicero

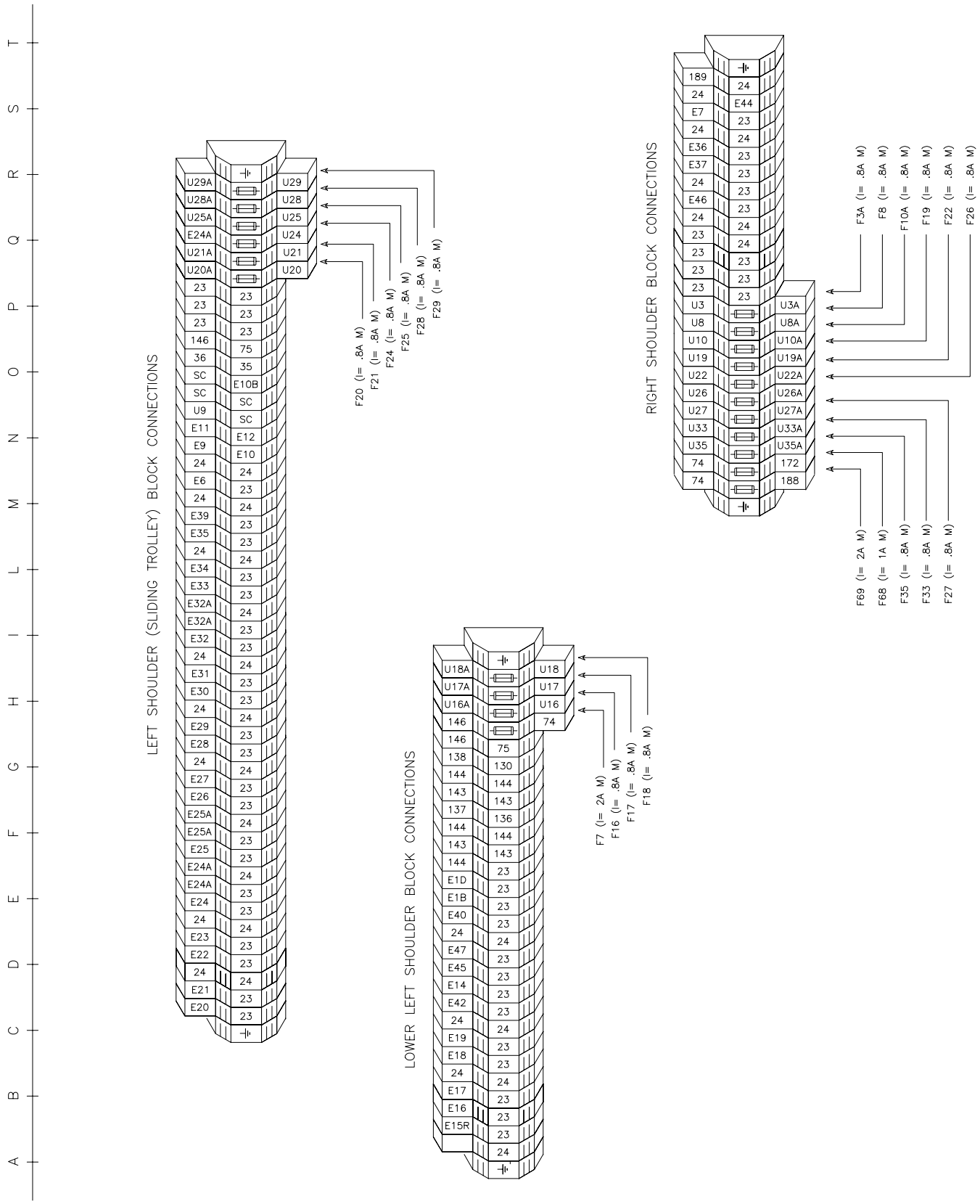
Updated :

CE

E-062.03
Sheet 17 / 19

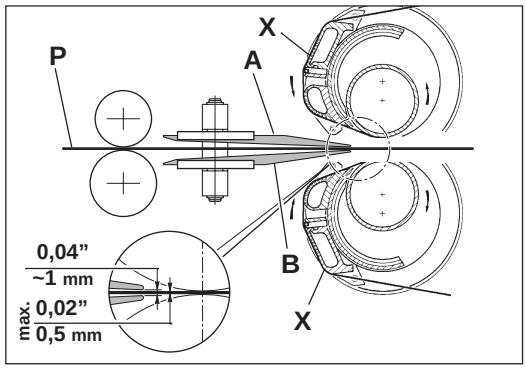


Allen Bradley PLC



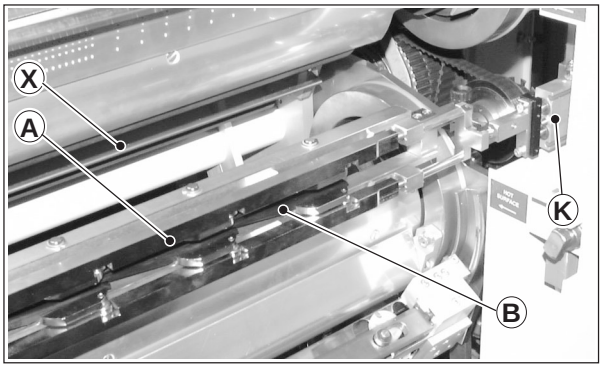
Allen Bradley PLC

THIN PANEL UNIT



OPERATION DESCRIPTION

When laminating very thin panels or panels with uneven copper (for inst. 1/2 oz. copper on one side and 1 oz. copper on the other side), it is recommended to use the Thin Panel Unit.
This unit operates as follows (see lateral fig.).
As soon as the panel leaves the front barrier, 6 (or alternatively 5) sets of guides A & B (upper & lower) turn by 90° forwards and support the panel during its travel to the tacking bars.
The guide turning mechanism is operated by a pneumatic cylinder (K) fitted with a set-point position check sensor.
The guides return o the rest position when the panel reaches the tacking bars.

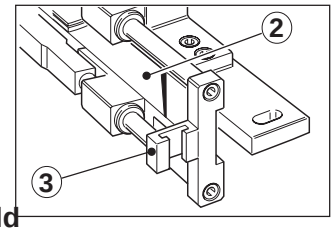


This Unit is to be used with thin panels only (thickness below 0,02” - 0,5 mm).

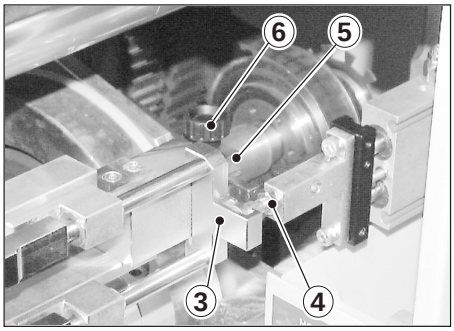
INSTALLATION OF THE THIN PANEL UNIT

Instructions for the correct installation of the Thin Panel Unit:

- Remove the standard guide (1) from its supports.
- Place into position the Thin Panel Unit (2) taking care to insert correctly the “C” type coupling (3) on the pushing pin (4) of the pneumatic cylinder.
- Lock the unit into position on the supports (5) with the knobs (6).



The Thin Panel unit is a precision tool and it should be handled with care to prevent damages.



THIN PANEL UNITS RECOMMENDED FOR DIFFERENT PANEL WIDTH

6 GUIDES UNIT			5 GUIDES UNIT		
PN. 062-12-166-00 DRAWING n° 062-0-0435			PN. 062-12-166-01 DRAWING n° 062-1-0435		
			Panel width		254 mm - 10”
			Panel width		280 mm - 11”
			Panel width		305 mm - 12”
Panel width		330 mm - 13”	Panel width	❊	330 mm - 13”
Panel width		356 mm - 14”			
Panel width		381 mm - 15”			
Panel width	❊	406 mm - 16”			
Panel width	❊	432 mm - 17”			
Panel width	❊	457 mm - 18”			
			Panel width		483 mm - 19”
			Panel width		508 mm - 20”
			Panel width		533 mm - 21”
Panel width		559 mm - 22”	Panel width		559 mm - 22”
Panel width		584 mm - 23”	Panel width		584 mm - 23”
Panel width		610 mm - 24”			
Panel width		635 mm - 25”			
Panel width		660 mm - 26”			

The Thin Panel Units must be used with very thin panels only (thickness below 0,02” - 0,5 mm).

WARNING (❊)

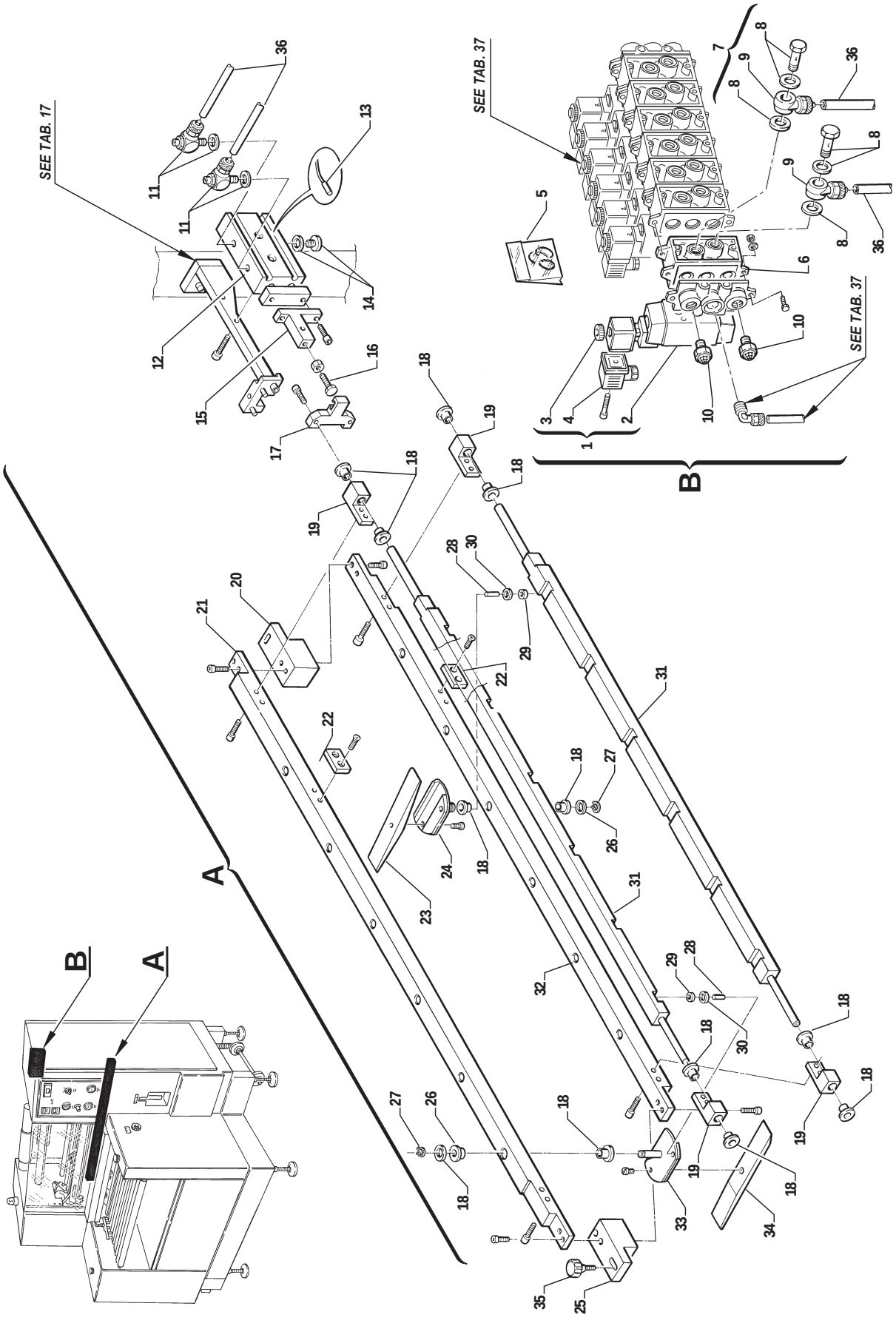
For panels of these sizes, remove the last right guides.

EMERGENCY MESSAGES DESCRIPTION

THIN PANEL DEVICE NOT AT SET POINT **440**

The machine has stopped or is unable to start because during the return phase of the thin panel device the sensor FC44 is not activated (set point position).

PART NUMBER	TAB.	POS.	SERIAL NUMBER	DESCRIPTION
062-01-022-00	OPT1	1	==	ELECTROVALVE 0.820.024.126 24V DC (ASSY)
062-01-022-02	OPT1	2	==	. VALVE BODY BOSCH 0.820.024.997
062-01-022-03	OPT1	3	==	. 24 VDC COIL FOR ELECTROVALVE BOSCH 1.824.210.223
062-01-022-04	OPT1	4	==	. CONNECTOR WITH INDICATOR FOR ELECTROVALVE BOSCH 1.834.484.101
062-01-022-01	OPT1	5	==	. SPARE PARTS KIT 1.827.009.314
062-01-021-00	OPT1	6	==	INTERMEDIATE PLATE 1.825.503.144
062-01-030-00	OPT1	7	==	SINGLE UNION ASSY ø6/4 - G1/4"
062-01-030-01	OPT1	8	==	. SINGLE ROD M D7 - G1/4" COD. 2407003
062-01-030-02	OPT1	9	==	. SINGLE RING D5 ø6/4 - G1/4" COD. 2405003
062-01-081-00	OPT1	10	==	SILENCER MV 110038 3/8"
062-01-082-00	OPT1	11	==	AIR FLOW REGULATOR M5
062-01-083-00	OPT1	12	==	GUIDED CYLINDERS TYPE HPS-BS-16-040 ø16x40
062-01-084-00	OPT1	13	==	MAGNETIC SENSOR TYPE HDV-303-A0
062-01-085-00	OPT1	14	==	PLUG M5
062-12-180-00	OPT1	15	==	HEAD FOR CYLINDER 0435.00.015
062-12-181-00	OPT1	16	==	SCREW 043500016
062-12-182-00	OPT1	17	==	CYLINDER CONNECTION 0435.00.008
062-12-183-00	OPT1	18	==	FLANGED BUSHING GLICODUR TYPE GLY.PBG.0810095F
062-12-184-00	OPT1	19	==	SLIDING SUPPORT 0435.00.006
062-12-185-00	OPT1	20	==	RIGHT SPACER 0435.00.003
062-12-186-00	OPT1	21	==	UPPER BAR 0435.00.002 (6 GUIDES)
062-12-186-01	OPT1		==	UPPER BAR 0435.01.002 (5 GUIDES)
062-12-187-00	OPT1	22	==	ANTIROTATION SPACER 0435.00.007
062-12-188-00	OPT1	23	==	LOWER GUIDE 0435.00.012
062-12-189-00	OPT1	24	==	LOWER GUIDE SUPPORT 0435.00.010
062-12-190-00	OPT1	25	==	LEFT SPACER 0435.00.004
062-12-191-00	OPT1	26	==	WASHER 0435.00.014
062-02-062-00	OPT1	27	==	SPRING RING E8
062-12-192-00	OPT1	28	==	PARALLEL PIN Ø 4x12
062-12-193-00	OPT1	29	==	BEARING WASHER 0435.00.013
062-02-403-00	OPT1	30	==	BEARING 624-2Z 4-13-5
062-12-194-00	OPT1	31	==	SLIDING SHAFT 0435.00.005 (6 GUIDES)
062-12-194-01	OPT1		==	SLIDING SHAFT 0435.01.005 (5 GUIDES)
062-12-195-00	OPT1	32	==	LOWER BAR 0435.00.001 (6 GUIDES)
062-12-195-01	OPT1		==	LOWER BAR 0435.01.001 (5 GUIDES)
062-12-196-00	OPT1	33	==	UPPER GUIDE SUPPORT 0435.00.009
062-12-197-00	OPT1	34	==	UPPER GUIDE 0435.00.011
062-12-198-00	OPT1	35	==	ELESA KNOB B 193/18 p. M5x16
062-01-037-00	OPT1	36	==	WHITE HOSE ø 6/4


SEE TAB. 17
SEE TAB. 37
SEE TAB. 37
A
B
B
A

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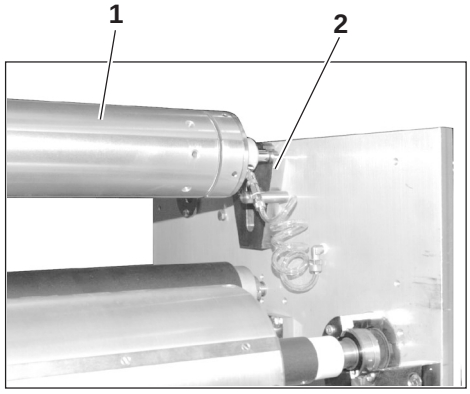
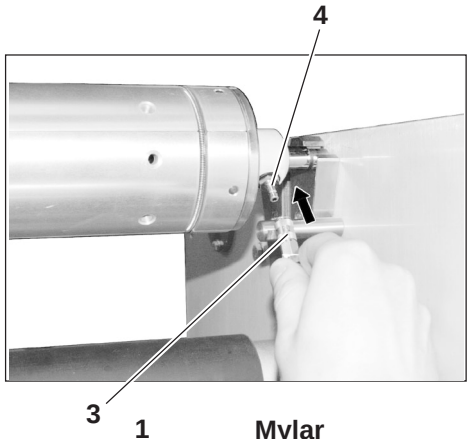
EXPANSION ROLL TAKE UP POLYETHYLENE

USE OF THE EXPANSION ROLL

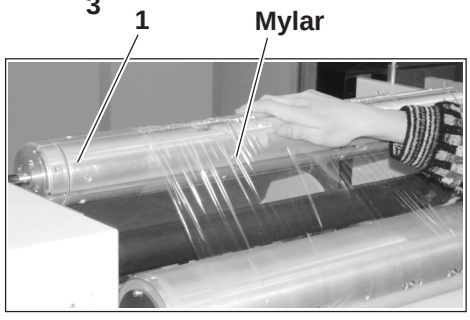


To properly use this roll it is necessary to proceed as follows:

- Place the roll (1) in the slots which are present on the proper shoulders (2).



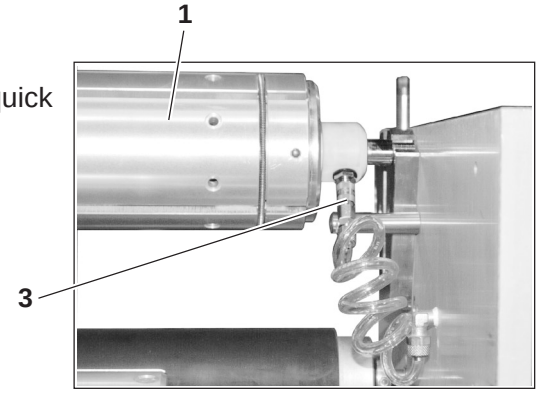
- Connect the air quick connection (3) to the proper joint (4) to air the expansion cylinders.



- Wind the mylar on the roll (1) and let it make at least two revolutions.

WARNING

Do not give air to the roll if it is not completely assembled.



To take out the mylar from the expansion roll:

- Eliminate the air from the roll (1) by releasing the air quick connection.
- Remove the expansion roll (1) from the machine.
- Extract the mylar from the roll (1).

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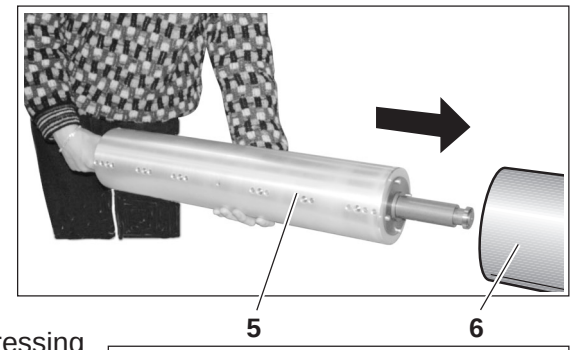
EXPANSION DRY FILM COIL HOLDER SHAFT

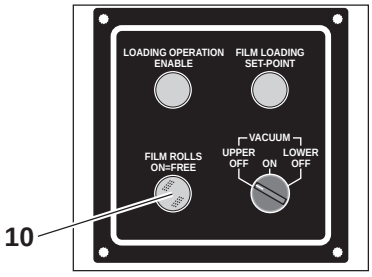
USE OF THE EXPANSION DRY FILM COIL HOLDER SHAFT

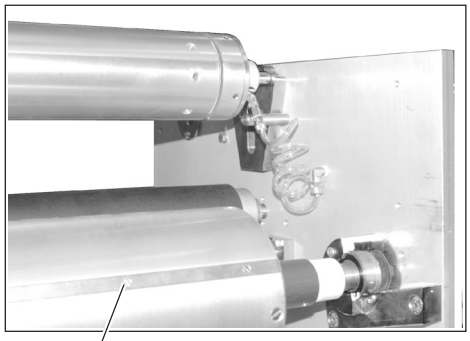
To properly use this shaft (5) proceed as follows:



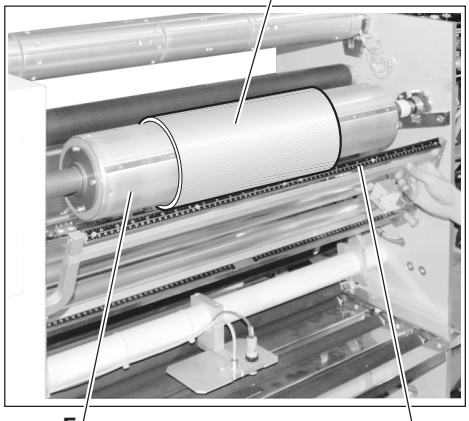
- Place the dry film coil holder shaft (5) in the dry film roll (6);

- Place the complete shaft in the machine and lock it by pressing the proper locking push button (10);

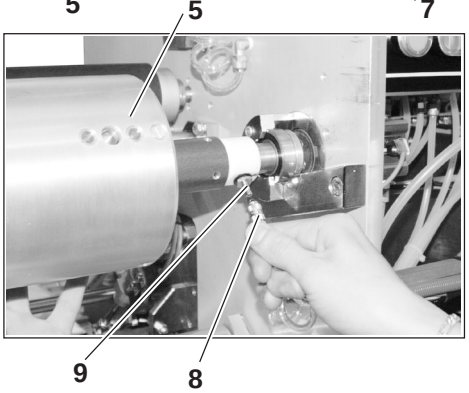




- Center the dry film roll (6) in the machine making reference to the scale (7);



- Connect the air quick connection (8) to the proper joint (9) to lock the dry film roll (6).



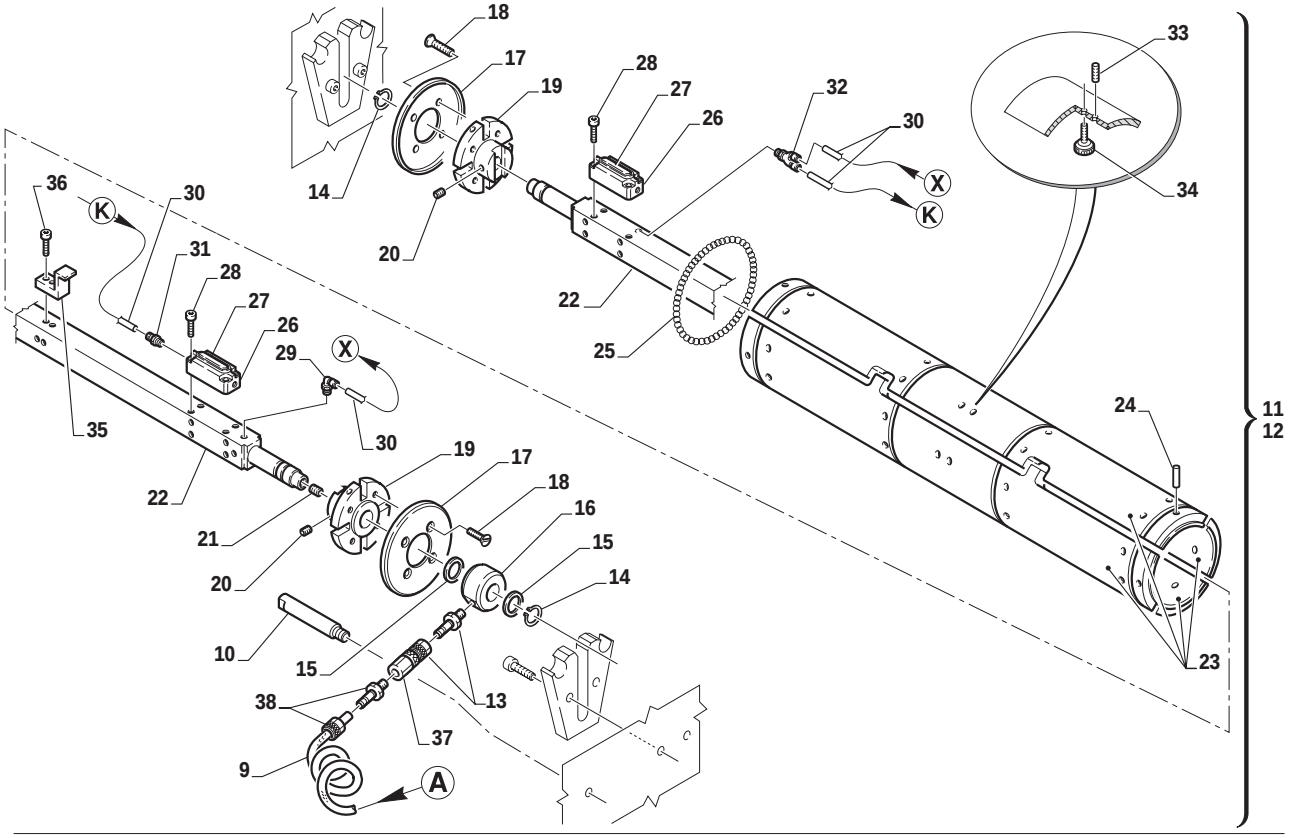
To take out the dry film roll (6) from the dry film coil holder shaft operate in the opposite direction.

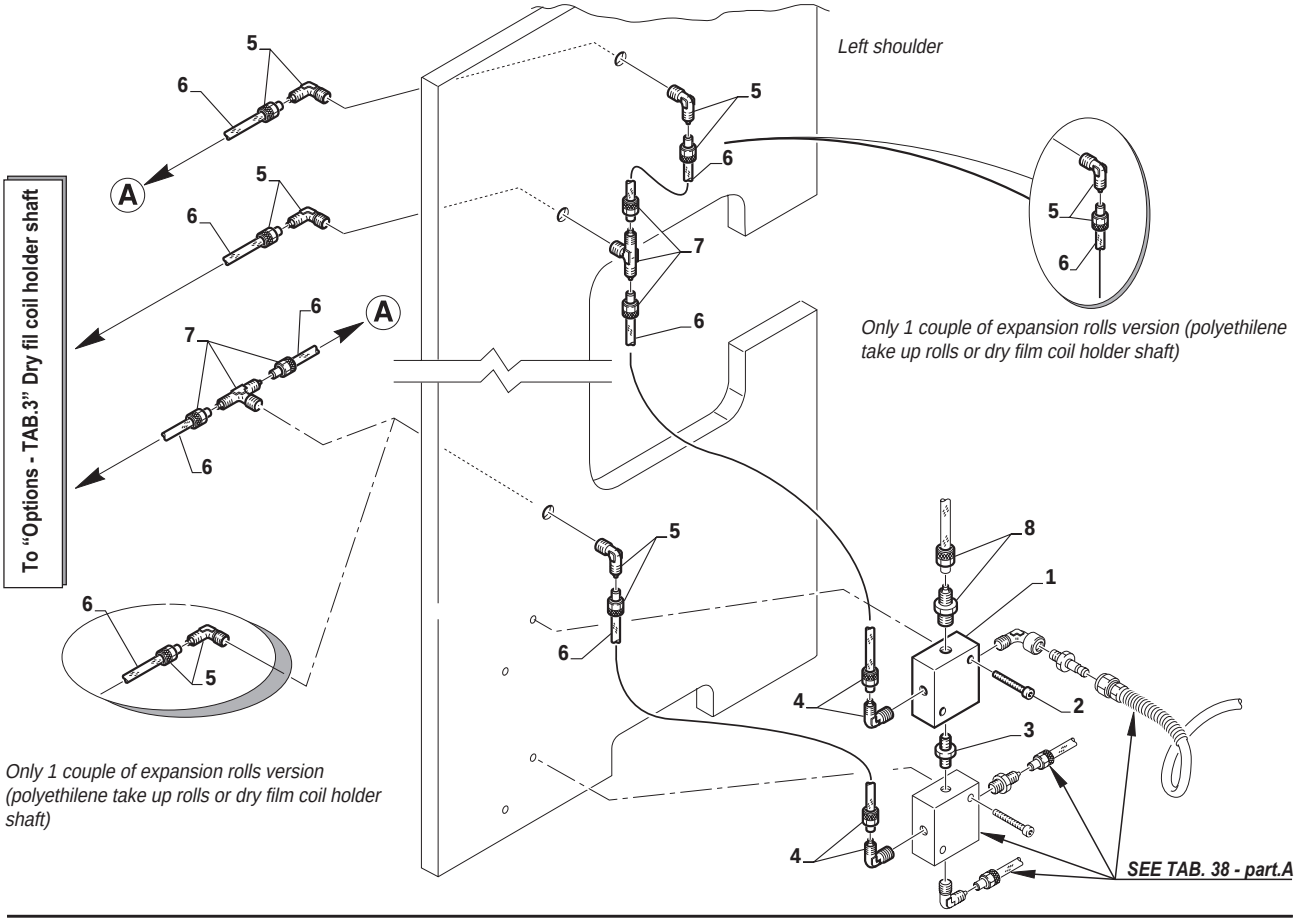
PART NUMBER	TAB.	POS.	SERIAL NUMBER	DESCRIPTION
062-01-034-00	OPT2	1	==	BLOCK A21 G1/4" COD. 2121002
062-02-217-00	OPT2	2	==	SCREW M5 x 15
062-01-089-00	OPT2	3	==	UNION 1/4 ÷ 1/4 COD. 2102004
062-01-028-00	OPT2	4	==	UNION ELBOW C5 ø 6/4 - G1/4" COD. 2305002
062-01-014-00	OPT2	5	==	UNION ELBOW C5 ø 6/4 - G1/8" COD. 2305001
062-01-003-00	OPT2	6	==	HOSE ø 6/4
062-01-046-00	OPT2	7	==	UNION TEE C7 - FMF ø 6/4 - G1/8" ART. 2307001
062-01-043-00	OPT2	8	==	TAPER CONNECTION C1ø 8/6 - G1/4" COD. 2301004
062-01-097-00	OPT2	9	==	HOSE ø 6/4 - SPIRAL ø 30
062-12-270-00	OPT2	10	==	PIN DRW SCX 343/2
062-12-174-00	OPT2	11	==	UPPER AND LOWER POLYETHYLENE TAKE UP ROLLS 06200444 (ASSY)
062-12-174-01	OPT2	12	==	POLYETHYLENE TAKE UP ROLL 06200444 (ASSY)
062-01-092-00	OPT2	13	==	. MALE JOINT 1/8" COD. 9087201
062-02-085-00	OPT2	14	==	. SPRING RING E15
062-12-271-00	OPT2	15	==	. GASKET "AIRZET" MERKEL PR15
062-12-272-00	OPT2	16	==	. PRESSURE INLET RING 044401005
062-12-273-00	OPT2	17	==	. HEAD FOR ROLL 044401004
062-02-287-00	OPT2	18	==	. SCREW M5 x 10
062-12-274-00	OPT2	19	==	. FLANGE 044401003
062-02-190-00	OPT2	20	==	. SCREW M6 x 6
062-12-275-00	OPT2	21	==	. SCREW M8 x 8
062-12-276-00	OPT2	22	==	. ROLL HOLDER ROD 044401002
062-12-277-00	OPT2	23	==	. POLYETHYLENE TAKE UP ROLL 044401001
062-02-981-00	OPT2	24	==	. PARALLEL PIN D. 5 X 20
062-12-278-00	OPT2	25	==	. SPRING L = 180mm - ø i 80
062-12-199-00	OPT2	26	==	. LOCKING MODULE FESTO TYPE EV-15/40-4 COMPLETE
062-12-199-01	OPT2	27	==	. PRESSURE PLATE FESTO TYPE EV-15/40 DP
062-02-628-00	OPT2	28	==	. SCREW M4 x 25
062-01-093-00	OPT2	29	==	. UNION ELBOW COD. 31990419
062-01-094-00	OPT2	30	==	. HOSE ø 4/2
062-01-095-00	OPT2	31	==	. UNION ø 4/M5 COD.31010419
062-01-096-00	OPT2	32	==	. "Y" UNION ø 4/M5 COD. 31580419
062-12-279-00	OPT2	33	==	. SCREW M5 x 16
062-12-280-00	OPT2	34	==	. CENTERING SCREW COD. 044401007
062-12-281-00	OPT2	35	==	. CENTERING SUPPORT COD. 044401006
062-12-282-00	OPT2	36	==	. SCREW M4 x 12
062-12-305-00	OPT2	37	==	. EXTENSION FOR AIR QUICK CONNECTION COD. 044400008
062-01-091-00	OPT2	38	==	. FEMALE JOINT M5 COD. 92142019

SHIPLEY
A ROHM AND HAAS COMPANY

PNEUMATIC SYSTEM - POLYETHILENE TAKE UP ROLL

OPTIONS TAB. 2
Rev. A
1600-SPC

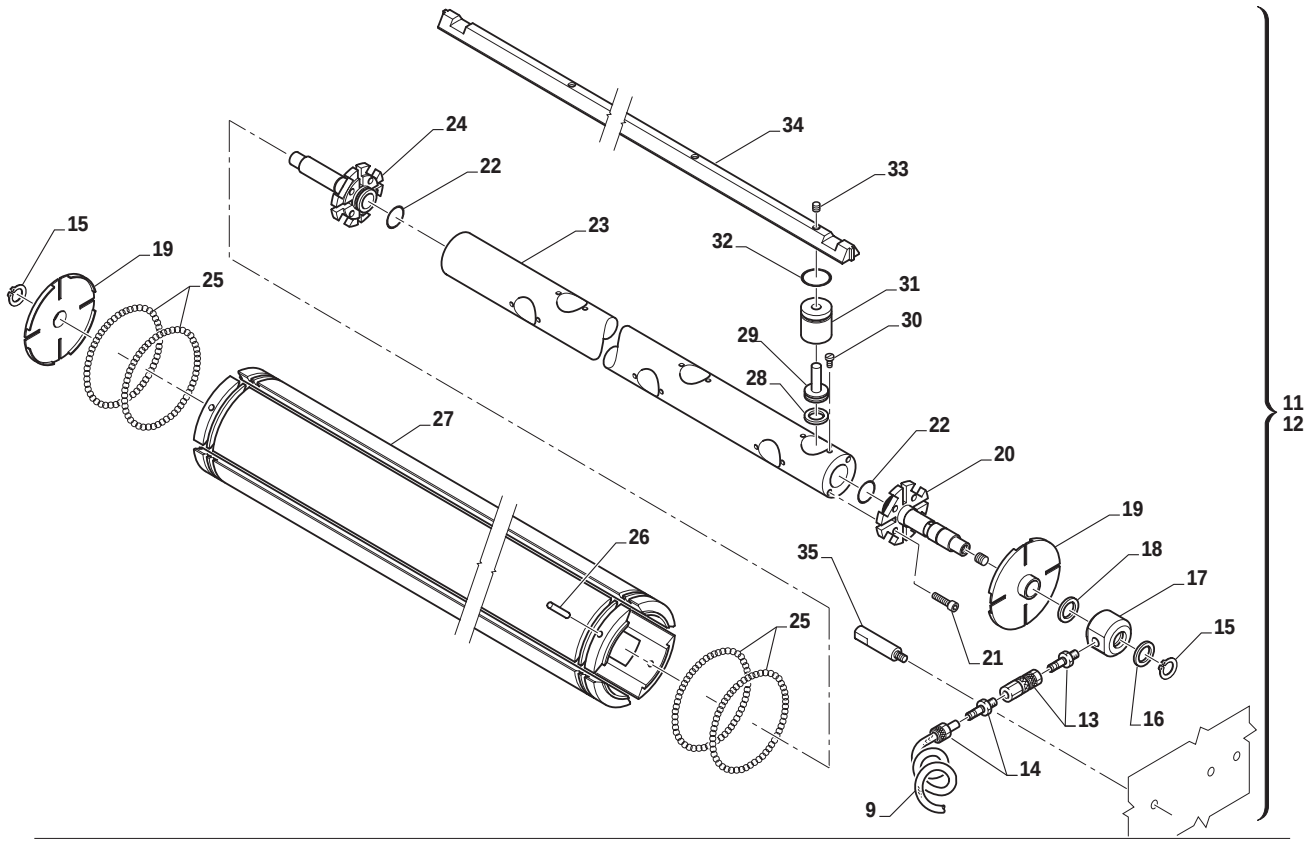




Only 1 couple of expansion rolls version (polyethilene take up rolls or dry film coil holder shaft)

Only 1 couple of expansion rolls version (polyethilene take up rolls or dry film coil holder shaft)

PART NUMBER	TAB.	POS.	SERIAL NUMBER	DESCRIPTION
062-01-034-00	OPT2	1	==	BLOCK A21 G1/4" COD. 2121002
062-02-217-00	OPT2	2	==	SCREW M5 x 15
062-01-089-00	OPT2	3	==	UNION 1/4 ÷ 1/4 COD. 2102004
062-01-028-00	OPT2	4	==	UNION ELBOW C5 ø 6/4 - G1/4" COD. 2305002
062-01-014-00	OPT2	5	==	UNION ELBOW C5 ø 6/4 - G1/8" COD. 2305001
062-01-003-00	OPT2	6	==	HOSE ø 6/4
062-01-046-00	OPT2	7	==	UNION TEE C7 - FMF ø 6/4 - G1/8" ART. 2307001
062-01-043-00	OPT2	8	==	TAPER CONNECTION C1ø 8/6 - G1/4" COD. 2301004
062-01-097-00	OPT2	9	==	HOSE ø 6/4 - SPIRAL ø 30
062-12-270-00	OPT2	10	==	PIN DRW SCX 343/2
062-12-174-00	OPT2	11	==	UPPER AND LOWER POLYETHYLENE TAKE UP ROLLS 06200444 (ASSY)
062-12-174-01	OPT2	12	==	POLYETHYLENE TAKE UP ROLL 06200444 (ASSY)
062-01-092-00	OPT2	13	==	. MALE JOINT 1/8" COD. 9087201
062-02-085-00	OPT2	14	==	. SPRING RING E15
062-12-271-00	OPT2	15	==	. GASKET "AIRZET" MERKEL PR15
062-12-272-00	OPT2	16	==	. PRESSURE INLET RING 044401005
062-12-273-00	OPT2	17	==	. HEAD FOR ROLL 044401004
062-02-287-00	OPT2	18	==	. SCREW M5 x 10
062-12-274-00	OPT2	19	==	. FLANGE 044401003
062-02-190-00	OPT2	20	==	. SCREW M6 x 6
062-12-275-00	OPT2	21	==	. SCREW M8 x 8
062-12-276-00	OPT2	22	==	. ROLL HOLDER ROD 044401002
062-12-277-00	OPT2	23	==	. POLYETHYLENE TAKE UP ROLL 044401001
062-02-981-00	OPT2	24	==	. PARALLEL PIN D. 5 X 20
062-12-278-00	OPT2	25	==	. SPRING L = 180mm - ø i 80
062-12-199-00	OPT2	26	==	. LOCKING MODULE FESTO TYPE EV-15/40-4 COMPLETE
062-12-199-01	OPT2	27	==	. PRESSURE PLATE FESTO TYPE EV-15/40 DP
062-02-628-00	OPT2	28	==	. SCREW M4 x 25
062-01-093-00	OPT2	29	==	. UNION ELBOW COD. 31990419
062-01-094-00	OPT2	30	==	. HOSE ø 4/2
062-01-095-00	OPT2	31	==	. UNION ø 4/M5 COD.31010419
062-01-096-00	OPT2	32	==	. "Y" UNION ø 4/M5 COD. 31580419
062-12-279-00	OPT2	33	==	. SCREW M5 x 16
062-12-280-00	OPT2	34	==	. CENTERING SCREW COD. 044401007
062-12-281-00	OPT2	35	==	. CENTERING SUPPORT COD. 044401006
062-12-282-00	OPT2	36	==	. SCREW M4 x 12
062-02-283-00	OPT2	37	==	. EXTENSION FOR AIR QUICK CONNECTION COD. 044400008
062-01-091-00	OPT2	38	==	. FEMALE JOINT M5 COD. 92142019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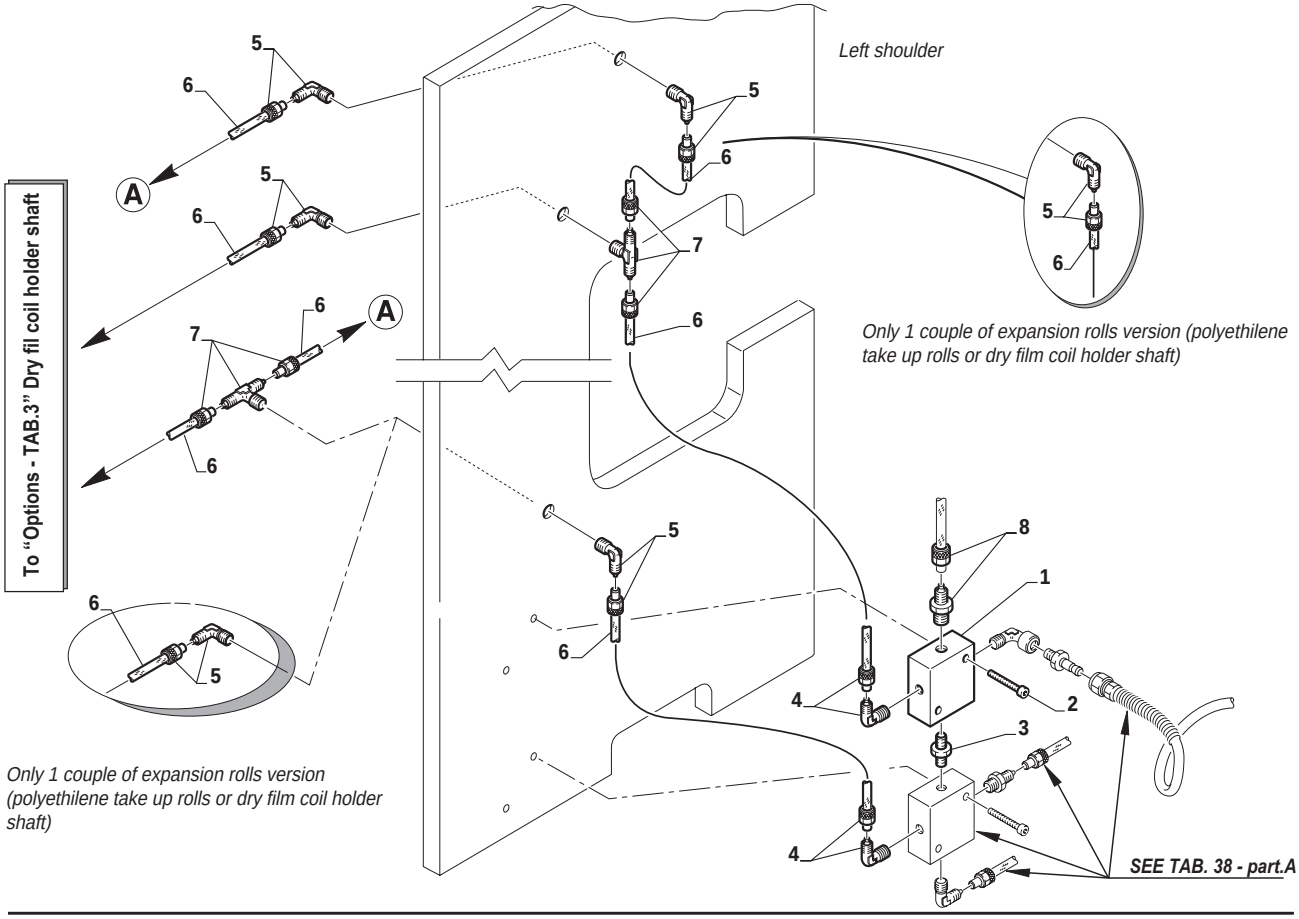
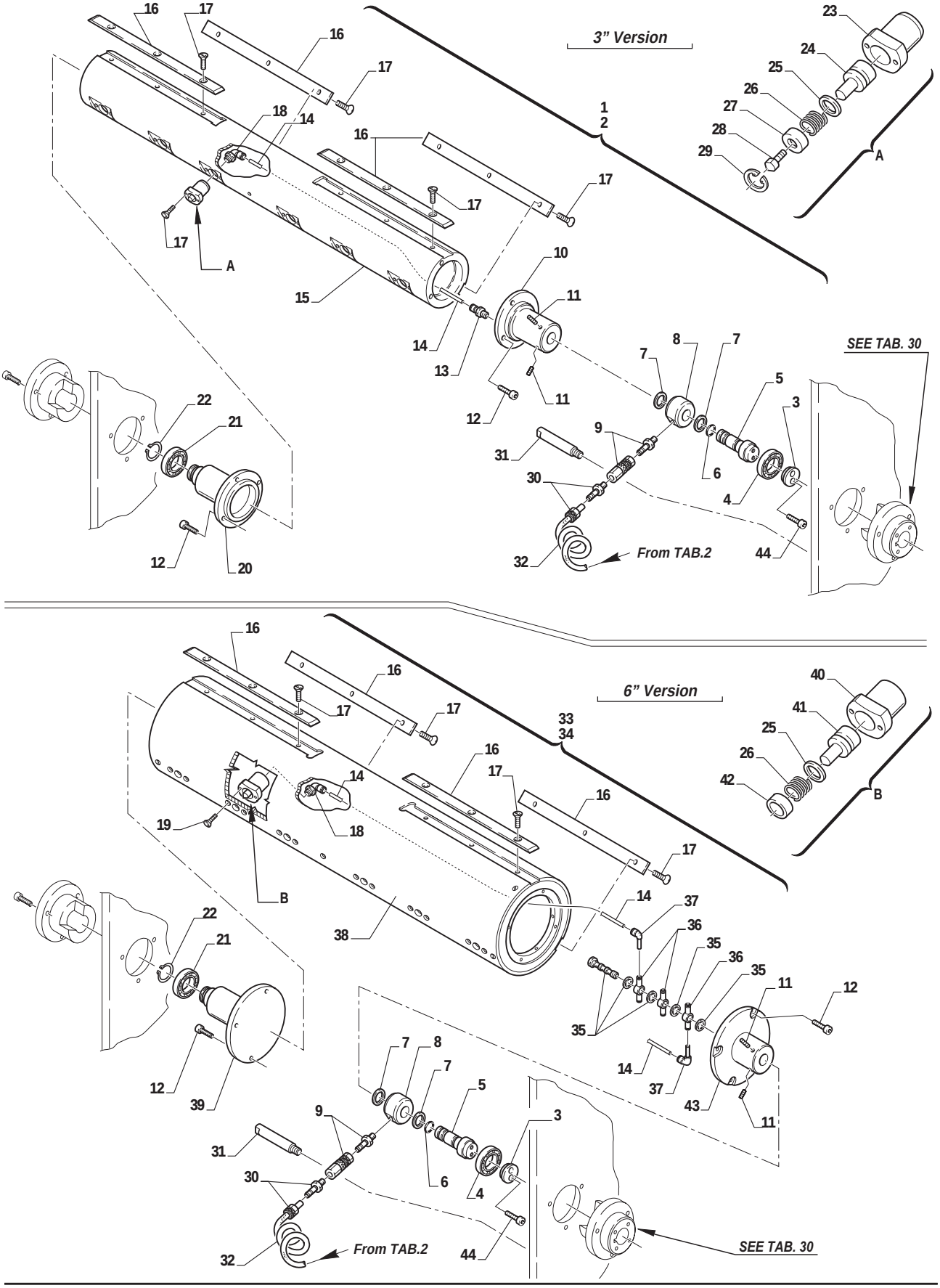

To "Options - TAB.3" Dry fil coil holder shaft
A
A
Left shoulder
Only 1 couple of expansion rolls version (polyethilene take up rolls or dry film coil holder shaft)
Only 1 couple of expansion rolls version (polyethilene take up rolls or dry film coil holder shaft)
SEE TAB. 38 - part.A

PART NUMBER	TAB.	POS.	SERIAL NUMBER	DESCRIPTION
062-12-200-00	OPT3	1	==	UPPER AND LOWER 3" EXPANSION DRY FILM COIL HOLDER ROLLS 06200457 (ASSY)
062-12-200-01	OPT3	2	==	3" EXPANSION DRY FILM COIL HOLDER ROLL 06200457 (ASSY)
062-02-619-01	OPT3	3	==	. DRUM 023801006
062-02-100-01	OPT3	4	==	. BALL BEARING SKF 6004 (20-42-8)
062-12-283-00	OPT3	5	==	. PIN FOR LEFT FLANGE 044800009
062-12-284-00	OPT3	6	==	. O RING 3037
062-12-285-00	OPT3	7	==	. GASKET "AIRZET" MERKEL PR15
062-12-286-00	OPT3	8	==	. PRESSURE INLET RING 044800009
062-01-092-00	OPT3	9	==	. MALE JOINT 1/8" COD. 90872010
062-12-287-00	OPT3	10	==	. LEFT FLANGE 045700002
062-02-186-00	OPT3	11	==	. SCREW M6 x 10
062-02-217-00	OPT3	12	==	. SCREW M5 x 15
062-01-095-00	OPT3	13	==	. UNION ø 4/2 - M5 COD. 31010419
062-01-094-00	OPT3	14	==	. HOSE ø 4/2
062-12-288-00	OPT3	15	==	. 3" DRY FILM ROLL HOLDER 045700001
062-12-289-00	OPT3	16	==	. LOCKING JAW 044800002
062-12-290-00	OPT3	17	==	. SCREW M4 x 10
062-01-093-00	OPT3	18	==	. UNION ELBOW ø 4/2 - M5 COD. 31990419
062-12-291-00	OPT3	19	==	. SCREW M5 X 10
062-12-292-00	OPT3	20	==	. RIGHT FLANGE 045700003
062-02-099-00	OPT3	21	==	. BALL BEARING SKF 61805 (25-37-7)
062-02-081-00	OPT3	22	==	. SPRING RING E25
062-12-293-00	OPT3	23	==	. PUSH DEVICE SUPPORT 045700004
062-12-294-00	OPT3	24	==	. PUSH DEVICE 045700005
062-12-295-00	OPT3	25	==	. GASKET "AIRZET" MERKEL PR20
062-12-296-00	OPT3	26	==	. SPRING DIM D. 12060
062-12-297-00	OPT3	27	==	. SPACER 045700007
062-12-298-00	OPT3	28	==	. ROD FOR PUSH DEVICE 045700006
062-02-094-00	OPT3	29	==	. SEEGER E20
062-01-091-00	OPT3	30	==	. FEMALE JOINT M5 COD. 92142019
062-12-299-00	OPT3	31	==	PIN DRW SCX 343/1
062-01-097-00	OPT3	32	==	HOSE ø 6/4 - SPIRAL ø 30
062-12-175-00	OPT3	33	==	UPPER AND LOWER 6" EXPANSION DRY FILM COIL HOLDER ROLLS 044800001 (ASSY)
062-12-175-01	OPT3	34	==	6" EXPANSION DRY FILM COIL HOLDER ROLL 044800001 (ASSY)
062-01-098-00	OPT3	35	==	. HOLLW SCREW 1/8" COD. 35290010
062-01-099-00	OPT3	36	==	. DOUBLE BODY 1/8" - ø 4/2 COD. 35390410
062-01-100-00	OPT3	37	==	. COMPACT UNION ELBOW ø 4 - 4/2 COD. 31920400
062-12-300-00	OPT3	38	==	. 6" DRY FILM ROLL HOLDER 044800001
062-12-301-00	OPT3	39	==	. RIGHT FLANGE 044800005
062-12-302-00	OPT3	40	==	. PUSH DEVICE SUPPORT 044800008
062-12-303-00	OPT3	41	==	. PUSH DEVICE 044800006
062-12-304-00	OPT3	42	==	. SPACER 044800007
062-12-305-01	OPT3	43	==	. LEFT FLANGE 044800001
062-02-467-00	OPT3	44	==	. SCREW M5 x 12


3" Version
6" Version
SEE TAB. 30
From TAB.2
SEE TAB. 30
From TAB.2

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PART NUMBER	SERIAL NUMBER	TAB.	POS.
062-01-003-00	==	OPT2	6
062-01-014-00	==	OPT2	5
062-01-021-00	==	OPT1	6
062-01-022-00	==	OPT1	1
062-01-022-01	==	OPT1	5
062-01-022-02	==	OPT1	2
062-01-022-03	==	OPT1	3
062-01-022-04	==	OPT1	4
062-01-028-00	==	OPT2	4
062-01-030-00	==	OPT1	7
062-01-030-01	==	OPT1	8
062-01-030-02	==	OPT1	9
062-01-034-00	==	OPT2	1
062-01-037-00	==	OPT1	36
062-01-043-00	==	OPT2	8
062-01-046-00	==	OPT2	7
062-01-081-00	==	OPT1	10
062-01-082-00	==	OPT1	11
062-01-083-00	==	OPT1	12
062-01-084-00	==	OPT1	13
062-01-085-00	==	OPT1	14
062-01-089-00	==	OPT2	3
062-01-091-00	==	OPT2	38
062-01-091-00	==	OPT3	30
062-01-092-00	==	OPT2	13
062-01-092-00	==	OPT3	9
062-01-093-00	==	OPT2	29
062-01-093-00	==	OPT3	18
062-01-094-00	==	OPT2	30
062-01-094-00	==	OPT3	14
062-01-095-00	==	OPT2	31
062-01-095-00	==	OPT3	13
062-01-096-00	==	OPT2	32
062-01-097-00	==	OPT2	9
062-01-097-00	==	OPT3	32
062-01-098-00	==	OPT3	35
062-01-099-00	==	OPT3	36
062-01-100-00	==	OPT3	37

PART NUMBER	SERIAL NUMBER	TAB.	POS.
062-02-062-00	==	OPT1	27
062-02-081-00	==	OPT3	22
062-02-085-00	==	OPT2	14
062-02-094-00	==	OPT3	29
062-02-099-00	==	OPT3	21
062-02-100-00	==	OPT3	4
062-02-186-00	==	OPT3	11
062-02-190-00	==	OPT2	20
062-02-217-00	==	OPT2	2
062-02-217-00	==	OPT3	12
062-02-287-00	==	OPT2	18
062-02-403-00	==	OPT1	30
062-02-467-00	==	OPT3	44
062-02-619-00	==	OPT3	3
062-02-628-00	==	OPT2	28
062-02-981-00	==	OPT2	24
062-12-174-00	==	OPT2	11
062-12-174-01	==	OPT2	12
062-12-175-00	==	OPT3	33
062-12-175-01	==	OPT3	34
062-12-180-00	==	OPT1	15
062-12-181-00	==	OPT1	16
062-12-182-00	==	OPT1	17
062-12-183-00	==	OPT1	18
062-12-184-00	==	OPT1	19
062-12-185-00	==	OPT1	20
062-12-186-00	==	OPT1	21
062-12-186-01	==	OPT1	21
062-12-187-00	==	OPT1	22
062-12-188-00	==	OPT1	23
062-12-189-00	==	OPT1	24
062-12-190-00	==	OPT1	25
062-12-191-00	==	OPT1	26
062-12-192-00	==	OPT1	28
062-12-193-00	==	OPT1	29
062-12-194-00	==	OPT1	31
062-12-194-01	==	OPT1	31
062-12-195-00	==	OPT1	32
062-12-195-01	==	OPT1	32
062-12-196-00	==	OPT1	33
062-12-197-00	==	OPT1	34
062-12-198-00	==	OPT1	35
062-12-199-00	==	OPT2	26
062-12-199-01	==	OPT2	27
062-12-200-00	==	OPT3	1
062-12-200-01	==	OPT3	2

PART NUMBER	SERIAL NUMBER	TAB.	POS.
062-12-270-00	==	OPT2	10
062-12-271-00	==	OPT2	15
062-12-272-00	==	OPT2	16
062-12-273-00	==	OPT2	17
062-12-274-00	==	OPT2	19
062-12-275-00	==	OPT2	21
062-12-276-00	==	OPT2	22
062-12-277-00	==	OPT2	23
062-12-278-00	==	OPT2	25
062-12-279-00	==	OPT2	33
062-12-280-00	==	OPT2	34
062-12-281-00	==	OPT2	35
062-12-282-00	==	OPT2	36
062-12-283-00	==	OPT3	5
062-12-284-00	==	OPT3	6
062-12-285-00	==	OPT3	7
062-12-286-00	==	OPT3	8
062-12-287-00	==	OPT3	10
062-12-288-00	==	OPT3	15
062-12-289-00	==	OPT3	16
062-12-290-00	==	OPT3	17
062-12-291-00	==	OPT3	19
062-12-292-00	==	OPT3	20
062-12-293-00	==	OPT3	23
062-12-294-00	==	OPT3	24
062-12-295-00	==	OPT3	25
062-12-296-00	==	OPT3	26
062-12-297-00	==	OPT3	27
062-12-298-00	==	OPT3	28
062-12-299-00	==	OPT3	31
062-12-300-00	==	OPT3	38
062-12-301-00	==	OPT3	39
062-12-302-00	==	OPT3	40
062-12-303-00	==	OPT3	41
062-12-304-00	==	OPT3	42
062-12-305-00	==	OPT2	37
062-12-305-01	==	OPT3	43

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